

# CITY OF CHARLOTTESVILLE

*"A World Class City"*



## ADOPTED UTILITY RATE REPORT FY2016



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Department of Finance



Department of Public Works

# Table of Contents

<b>Section I: Executive Summary .....</b>	<b>4</b>
A. Water .....	4
B. Wastewater .....	7
C. Gas .....	9
D. Impact on Average Residential Customer Monthly Utility Bill .....	10
Figure 1: Comparison of Monthly Utility Bill for Water, Wastewater, and Gas .....	10
Figure 2: Comparison of Monthly Utility Bill for Water and Wastewater .....	10
<b>Section II: Improving Infrastructure .....</b>	<b>11</b>
A. Inflow and Infiltration Needs .....	11
B. Water Distribution System Improvements .....	13
C. Stormwater Conveyance System Improvements .....	14
<b>Section III: Rivanna Water and Sewer Authority .....</b>	<b>16</b>
<b>Section IV: Water Utility .....</b>	<b>18</b>
A. Water Rate Structure .....	18
B. Fiscal Year 2016 Budget and Rate Impact .....	18
C. Rate Stabilization Funds .....	20
D. Factors Influencing Water Rates .....	20
Figure 3: Components of Adopted Water Rate .....	21
Figure 4: Changes in Water Rate Expenses – Biennial Comparison .....	22
Figure 5: Changes in Water Rate Revenue – Biennial Comparison .....	24
E. Facility Fee Recommendations .....	25
Figure 6: Adopted Water Facility Fees .....	26
F. Water Conservation Program .....	27
Figure 7: Water Conservation Activities .....	28
G. Toilet and Rain Barrel Rebate Programs .....	30
Figure 8: Historic Participation in Toilet Rebate Program .....	31
H. Water Assistance Program .....	32
I. Water Utility Capital Projects .....	32
Figure 9: RWSA 5 Year Capital Improvement Plan for Water .....	32
J. Exhibits .....	34
<b>Section V: Wastewater Utility .....</b>	<b>39</b>
A. Fiscal Year 2016 Budget and Rate Impact .....	39
B. RWSA's Fiscal Year 2016 Wholesale Rate .....	40
C. Rate Stabilization Funds .....	43
D. Factors Influencing Wastewater Rates .....	43
Figure 10: Components of Adopted Wastewater Rate .....	43
Figure 11: Changes in Wastewater Rate Expenses – Biennial Comparison .....	45
Figure 12: Changes in Wastewater Rate Revenue – Biennial Comparison .....	47
E. Rate Comparisons .....	48
F. Wastewater Assistance Program .....	48
G. Facility Fees .....	48
Figure 13: Adopted Wastewater Facility Fees .....	49
H. Wastewater Utility Capital Projects .....	49
Figure 14: RWSA 5 Year Capital Improvement Plan for Wastewater .....	49
I. Exhibits .....	51
<b>Section VI: Combined Water and Wastewater Charges .....</b>	<b>55</b>
<b>Section VII: Stormwater Utility .....</b>	<b>59</b>
Figure 15: 5 Year Capital Improvement Plan for Stormwater .....	60
<b>Section VIII: Gas Utility .....</b>	<b>61</b>
A. Background .....	61
B. Marketing Efforts and New Business .....	62

	Figure 16: New Services Completed and Planned .....	63
C.	Review of Fiscal Year 2014 Performance .....	68
D.	Fiscal Year 2016 Budget, Estimated Gas Sales and Adopted Rates.....	69
E.	Gas Rate Comparison .....	71
F.	Gas Assistance Program .....	71
G.	Programmable Thermostat Rebate Program.....	71
H.	Summary of Recommendations .....	72
I.	Factors Influencing the Gas Rate .....	72
	Figure 17: Components of Adopted Gas Rate.....	73
J.	Exhibits .....	74
<b>Section IX:</b>	<b>Estimated Future Water and Wastewater Rates.....</b>	<b>80</b>
A.	General.....	80
B.	Future Water Rates.....	81
C.	Future Wastewater Rates .....	82
D.	Exhibits .....	83
<b>Glossary of Terms</b> .....		<b>87</b>

## **SECTION I: EXECUTIVE SUMMARY**

This report presents the adopted utility rates for water, wastewater, and gas service for the fiscal year 2016. The rates are based on the operating budget for the utilities, debt service costs, and the wholesale rates from Rivanna Water and Sewer Authority (RWSA), and BP, our gas supplier.

All three utilities are enterprise funds designed to operate on a break-even basis, making no profit, although weather conditions and other factors can produce an economic gain or loss in any year.

### **A. *Water***

For fiscal year 2016, the adopted composite rate for 1,000 cubic feet of water is \$52.37, a 3.54% increase. The average single-family customer using 437 CF of water per month will pay \$26.89 based on this rate. The increase in the water rate is due to the following:

- The wholesale rate charged by RWSA accounts for 48% of the operating cost of the water utility. RWSA composite rate charged to the City increased from \$19.919/mcf in FY2015 to \$20.615/mcf in FY2016. The composite rate is comprised of an operating and a debt service component. The operating component is the portion needed to cover the City's share of RWSA's operating costs for supplying wholesale water to the region. The operating portion of the rate is increasing by 1.78%, from \$12.589/mcf to \$12.813/mcf. (For a description please see RWSA Fiscal Year 2015-2016 Budget Proposed March 24, 2015 [http://www.rivanna.org/documents/agendas/agenda\\_mar24\\_2015\\_doc8a.pdf](http://www.rivanna.org/documents/agendas/agenda_mar24_2015_doc8a.pdf)).
- The debt component of RWSA's rate rose from \$7.330/mcf to \$7.802/mcf, or 6.43%. RWSA has incorporated the locally derived priorities to include a new tunnel to relocate the Rivanna Pump Station, wholesale water metering, and granular activated carbon (GAC) for water treatment. (For a detailed description of RWSA's Capital Improvement Plan, Fiscal Years 2015-2019, and Adopted January 27, 2015 please see [http://www.rivanna.org/documents/agendas/agenda\\_jan27\\_2015\\_doc7b.pdf](http://www.rivanna.org/documents/agendas/agenda_jan27_2015_doc7b.pdf)). The resulting combined rate charged by RWSA for wholesale water is \$20.615/mcf, a 3.49% increase.

- The portion of RWSA's operating costs that the City pays is based on its relative share of RWSA's total flow. It should be noted that the City's share of water usage has fallen from 72% in 1983 to its current level of 53%. This is the same level of usage attributed to City for the last fiscal year.
- Rate stabilization is comprised of a revenue stream that has been accumulated for the purpose of leveling rates. This is intended to mitigate any dramatic fluctuations that might occur in a given year, for example, by large increases in debt service expenses for capital projects, either by RWSA or by the City. Currently, the primary components that comprise the facility fee for water are excess cash within the fund, unintended surpluses from prior fiscal years due to higher than projected sales, and facility fee revenue. This revenue stream is explained in detail in Section III-E. \$500,000 (\$145,000 less than was used last fiscal year) is to be used in FY2016 to lower water rates to customers. Rate stabilization will reduce the rate to customers by \$3.43 per 1,000 cubic feet.
- Excluding the cost of water purchased from RWSA and the City's debt service costs, expenditures are projected to increase \$34,432. The principal reason for the increase is the payment in-lieu of taxes (PILOT) payments to the General Fund, but this is primarily offset by a reduction in indirect costs. Indirect costs are based on a study that is performed annually to determine which costs of general government are used to support the enterprise funds.
- Debt service funding, used to pay for capital projects that have been financed with long-term bonds, is expected to remain the same as last year, \$1,725,000.
- Several assumptions about water usage are made to complete the rate calculation. Water volume purchased from RWSA is expected to decrease from 248,810 mcf to 245,559 mcf. This is slightly higher than RWSA's assumption for Charlottesville and is based on current year projections and on the loss factor that the City has been experiencing lately (projected to be 16% in FY2016). The loss factor is the difference between the amount we purchase from RWSA and the amount we sell to our customers. It can be associated with meter errors, unmetered/unbilled water use, and water leaks that occur.
- The University of Virginia (UVa) is our single largest water customer, comprising approximately 29% of total water use. It is projected that their water use in FY2016 will

be 60,250 mcf; a decrease from projected FY2015 usage (60,750 mcf) and actual usage in FY2014 (62,800 mcf). The reduction is due to continued conservation measures employed by UVa.

While the composite water rate is increasing by 3.54%, the actual increase each customer will see on their monthly utility bill is dependent on monthly water usage. For example:

- The average monthly wastewater bill for the single family household, who uses 437 cf of water, will rise from \$25.67 to \$26.89, an increase of \$0.92 or 3.54%.
- The monthly bill for the retail customer who uses 1,000 cf per month will rise from \$54.27 to \$56.37, an increase of \$2.10 or 3.87%.

The City adopted a seasonal rate structure in 2004 to encourage conservation by charging higher prices in summer months, when water supply is likely to be lower. The average amount of water used by a single family customer has been declining by an average of 2% annually for the past several years. Water conservation is both good for the environment and customer's checkbooks as lower usage can partially offset increases in rates.

- The monthly bill for the average single-family residential customer, who uses 437 cf per month, will increase from \$23.51 to \$24.27; rising \$0.76 or 3.23% in winter months. The same average household will pay \$30.36 in summer months, up from \$29.36 last year, an increase of \$1.00 or 3.41% in summer months.

The water conservation program continues to assist City customers by permanently reducing their water consumption. The toilet rebate program remains at \$40,000. Also, the City of Charlottesville continues to provide a \$30 rebate for each, up to two rain barrels to qualifying City water customers.

The specific rate and fee proposal for next year includes:

1. Increase in the consumption rate per mcf of all water used from \$50.27 to \$52.37.
2. Continue seasonal rates as outlined on page 14.
3. Maintain the City's connection (facility) fees for new customers adopted in FY2013 to more accurately reflect actual costs of providing additional water capacity.
4. Increase in facility fees for low-income housing for meters greater than 5/8" to 25% of the facility fee charge for a new water service.

The current monthly customer charge of \$4.00 will remain unchanged. In summary, the monthly bill for 437 cf of water consumption will increase by \$1.00 (3.41%) in the summer months and by \$0.76 (3.23%) in the winter months.

Estimated Future Water and Wastewater Rates are shown in Section IX. This section presents the projected rates for future fiscal years 2017 through 2020 and presents the impact on the future rates of the additional revenue generated by the facility fees, projected economic conditions, and the City's and RWSA's capital improvement plans. (For a complete list of capital projects for the Water Utility, please see Section IV-I.)

## **B. Wastewater**

For fiscal year 2016, the adopted rate for 1,000 cf of wastewater is \$70.44, an increase of 14.99%. The average single family customer using 437 cf of water a month will pay \$34.78 at this rate. This increase in the wastewater rate is due to the following:

- The wastewater treatment cost charged by RWSA accounts for 53.7% of the City's expenditures for the wastewater utility. RWSA has increased its composite rate charged to the City by 3.45%, from \$28.589/mcf to \$29.576/mcf. The composite rate is comprised of an operating component and a debt service component.
- The operating component is the portion needed to cover the City's share of RWSA's operating costs for wastewater treatment to the region. The operating portion of the rate is increasing by 1.19%, from \$13.225/mcf to \$13.382/mcf. (For a description please see RWSA Fiscal Year 2015-2016 Budget Proposed March 24, 2015 [http://www.rivanna.org/documents/agendas/agenda\\_mar24\\_2015\\_doc8a.pdf](http://www.rivanna.org/documents/agendas/agenda_mar24_2015_doc8a.pdf)).
- The debt component of the rate charged is increasing from \$15.364/mcf to \$16.194/mcf, or 5.4%. The resulting combined rate charged by RWSA for wholesale wastewater is \$29.576/mcf, a \$0.987/mcf increase, or 3.45%.
- The total amount of wastewater that RWSA forecasts will be treated remains unchanged from FY2015 to FY2016; however the City's share of the total has risen by one percentage point. The City will pay 54% of the total urban wastewater treatment costs borne by RWSA, its share relative to Albemarle County (46%). The City's relative share is based on historical flow figures.

- Currently there is \$300,000 available for rate stabilization of the wastewater utility. Rate stabilization revenue will be utilized in rate calculations to minimize rate increases in a given year.
- The Wastewater Utility budget, net of treatment costs and debt service, is increasing \$63,005 from the FY2015 budget. Wastewater Operations and Maintenance costs are increasing \$39,333, primarily the result of an increase in personnel costs. The PILOT payment to the general fund is increasing based on 6% of budgeted sales from the prior year. Indirect Costs paid to the general fund are declining. This is based on a study that is performed annually to determine which costs of general government are used to support of enterprise funds.
- Debt service is increasing compared to FY2015 from \$2,400,000 to \$2,985,000. Debt service is based on capital projects that are bond funded for the wastewater utility.

While the wastewater rate is increasing by 14.99%, the actual percent increase for each customer is dependent on monthly usage. For example:

- The average monthly wastewater bill for the single family household, who uses 437 cf of water, will rise from \$30.77 to \$34.78, an increase of \$4.01 or 13.03%.
- The monthly bill for the retail customer who uses 1,000 cf per month will rise from \$65.26 to \$74.44, an increase of \$9.18 or 14.07%.

Specific rate and fee proposals for next year are:

1. Increase the consumption rate per mcf from \$61.26 to \$70.44.
2. Maintain the City's wastewater facility fees for new customers adopted in FY2013 to accurately reflect the actual cost of providing wastewater capacity.
3. Increase in facility fees for low-income housing for meters greater than 5/8" to 25% of the cost of new wastewater fee.

The current monthly customer charge of \$4.00 will remain unchanged.

See Section IX for projected rates for future fiscal years 2017 through 2020. This section presents the impact of the additional revenue generated by the facility fees, projected economic conditions, and the City's and RWSA's capital improvement plans on future rates. (For a complete list of capital projects for the Wastewater Utility, please see Section V-H.)

## **C. Gas**

The rate for FY2016 will decrease by an average of 7.50% to the firm customers and 15.91% to the interruptible customers based on March 1, 2015 wholesale rates for the purchase of gas. Firm customers include all types of customers (residential, commercial and industrial) for whom gas supplies are guaranteed to be available all year without interruption. The actual percent decrease is dependent upon usage.

- For a representative residential monthly consumption of 5,092 cubic feet, the monthly bill will decrease from \$61.64 to \$57.02, a decrease of 7.50%.
- For a representative industrial interruptible monthly consumption of 1,000,000 cubic feet, the monthly bill will decline from \$7,731.66 to \$6,501.72, a decrease of 15.91%.
- The current monthly charge of \$10.00 for firm customers and \$60.00 for interruptible customers will remain unchanged.

Wholesale prices for natural gas have been volatile during the past twelve months, reaching a high of \$4.795/decatherm (dth) before falling to a low of \$2.866/dth. These wholesale cost fluctuations were passed on to the City's customers through the PGA rate adjustment. Natural gas continues to be popular and competitive with other heating sources. The City gas system continues to add new customers, both in the City and the County, at a steady rate.

The FY2016 budget includes continued funding for the Gas Assistance Program and for the customer heating conservation incentive program for the purchase of programmable thermostats. In addition, there is continued funding for technology, environmental administration and normal operating cost increases.

The adopted rates are based on current March 2015 wholesale rates. Gas prices have been higher but fell this year with the March 2015 commodity prices of \$2.894 which is \$1.961 decatherm (dth) lower than the March 2014 prices of \$4.855 on which the base rates for the year are established. The rate changes reflect the changes in contract prices, changes in the sales volume, and changes in the operating budget as well as contracting to purchase our gas through one pipeline.

## **D. Impact on Average Residential Customer Monthly Utility Bill**

The average single family customer using 437 cf of water and wastewater and 5,092 cf of gas per month is projected to spend the following per month:

**Figure 1: Comparison of Monthly Utility Bill for Water, Wastewater, and Gas**

	<u>Current</u>	<u>Adopted</u>	<u>Increase</u>	<u>Percent</u>
Water	\$ 25.97	\$ 26.89	\$ 0.92	3.54 %
Wastewater	30.77	34.78	4.01	13.03
Gas	<u>61.64</u>	<u>57.02</u>	<u>(4.62)</u>	<u>(7.50)</u>
Total	\$ 118.38	\$ 118.69	\$ 0.31	0.26 %

Currently, 87% of City utility customers have a water, wastewater, and natural gas account with the City of Charlottesville. The remaining 13% of have only water and wastewater accounts. For those 13% the bill may look more like the figure below.

**Figure 2: Comparison of Monthly Utility Bill for Water and Wastewater**

	<u>Current</u>	<u>Adopted</u>	<u>Increase</u>	<u>Percent</u>
Water	\$ 25.97	\$ 26.89	\$ 0.92	3.54 %
Wastewater	<u>30.77</u>	<u>34.78</u>	<u>4.01</u>	<u>13.03</u>
Total	\$ 56.74	\$ 61.67	\$ 4.93	8.69%

## SECTION II: IMPROVING INFRASTRUCTURE

All of the City's utilities are making significant infrastructure investments to provide better customer service, improve reliability and greater environmental stewardship. A brief description of these projects are provided here. Many of these projects are ongoing and funded with revenues from prior, current, and future fiscal years.

### ***A. Inflow and Infiltration Needs***

Charlottesville's sanitary sewer system extends to most areas of the City and consists of about 181 miles of pipe and 5,600 manholes. Because the system was constructed over a period of many decades, the main lines consist of several different types of materials - terracotta (clay), PVC, ductile iron, and concrete.

The pipes vary in age from about 15 to 100 years old. The sizes of the pipes range from six inches to thirty inches. Manholes are either brick or pre-cast concrete. While the City operates and maintains the sanitary system within its boundaries, both the Albemarle County and City systems empty into the RWSA interceptors that carry the combined wastewater to



RWSA's treatment plant at Moore's Creek Wastewater treatment plant.

The City has a number of challenges within the sewer system; sewer lines that are undersized, points in the system that restrict flow, and sewer lines that run near and under structures. Also, most of the existing system is the original pipe installed prior to 1970.

The goal of reducing inflow and infiltration ("I&I") to the sewer system continues. The terms "inflow" and "infiltration" apply to excess water that enters the sanitary sewer system. Inflow is surface water that flows into the system from various sources, such as defects in manhole covers and improperly connected roof drains. Infiltration is ground water that seeps into the system through pipe cracks, broken joints and deteriorated manholes. Excess flows from

rainfall often cause surplus water to enter the system. These events can result in overflows from manholes, which must be corrected for health and environmental reasons. The excess water also taxes the capacity of the treatment plant, which could lead to major investments to expand the treatment facilities. It also indicates that there are broken pipes and open joints where wastewater can get out of the system. The I&I rehabilitation



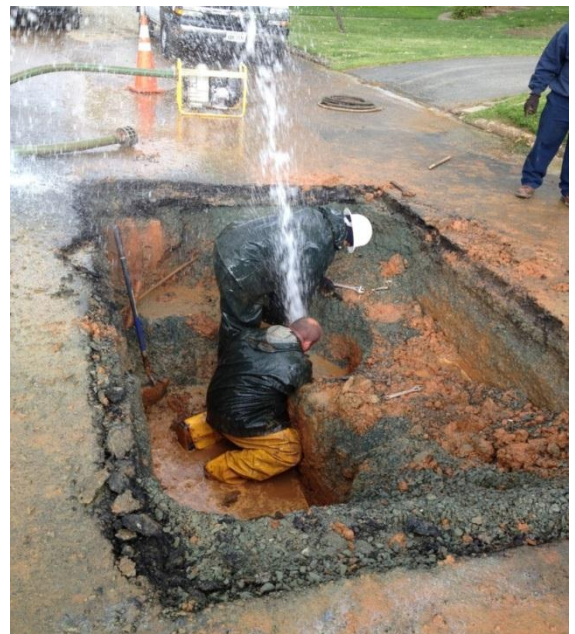
program identifies needed repairs to restore the integrity of the system and these are necessary in order to reduce the amount of inflow & infiltration to the sewer system.

An aggressive Sanitary Sewer Pipe Rehabilitation Program during the past 12 years has resulted in 41 miles completed. In September of 2009, the City awarded a multi-million dollar contract for sewer repair and rehabilitation. The work encompasses the rehabilitation of sewer manholes and sewer lines, as well as completion of particularly difficult or time consuming sewer repairs. In addition, crews have been performing CCTV (closed circuit televising) and smoke testing throughout the City system, and any deficient pipes or structures are immediately added to the list for rehabilitation under the same contract. Initial work has centered on the Schenk's Branch area, which was identified as a high priority in previous studies, but has since continued into other basins in the City.

Other high priority projects have continued to progress:

- The 14<sup>th</sup>/15<sup>th</sup> Street Sewer upgrade is in the beginning of the engineering design phase

For FY2014, \$4,834,625 has been spent on City wastewater projects.



## **B. *Water Distribution System Improvements***

The City's water distribution system contains over 1,200 fire hydrants, 3,300 water valves and 180 miles of water main line ranging in size from 2" to 24" in diameter. About 20 miles of that pipe is three inches or less in diameter. Most of these mains are galvanized steel, several decades old, and serving multiple customers. Not only are they severely corroded, but the pressure is very low. These undersized lines are being replaced with adequately sized water lines. In 2009, a Water Prioritization Study was completed, which identified 48 projects totaling \$7 million to be completed. Work has been completed on 33 of those high priority projects, including 6 that were subsequently added to the list as their condition deteriorated. The water line replacement priorities continue to grow as more potential projects are identified and evaluated. Total linear feet of pipe replaced so far for these projects is more than 50,000 (9.5 miles) averaging 10,000 linear feet (1.9 miles) per year. This work is continuing in 2015.

These projects aim to improve fire protection, reduce main breaks, and improve overall water quality. The next phase of projects includes Bainbridge, Appletree, Piedmont and Lester Drive.

Additionally, Public Utilities is planning to replace an existing 18" water main that is a main feed to the City. This project will be done in phases; the first phase includes relocation of the line that currently goes under the railroad tracks just south of 9<sup>th</sup> Street SW. The new line will be installed in W. Main Street from 9<sup>th</sup> Street SW and turn south on Roosevelt Brown Blvd and connecting to the existing line at Grove Street. This project is currently under design and is scheduled for construction in 2015.



Most of the City's service lines (the lines from the mains to the water meters) are galvanized steel and were installed when the residences were constructed. Many are now severely corroded with a tendency to fail at the worst times – nights, weekends, and inclement weather events. The City is continuing its service line replacement program as part of the upgrading and replacement of water mains. Over 32,000 linear feet (6 miles) of water service lines have been replaced.

Lastly, the City has implemented a meter testing and recalibration, and replacement project that addresses all size meters at assessment frequencies determined by the meter size. Further

descriptions of these two projects are discussed in the Water Conservation Program section (Section IV-F).

For FY2014, \$2,008,955 has been spent on City water projects.

### **C. *Stormwater Conveyance System Improvements***

Charlottesville's stormwater conveyance system is integrated throughout the City's municipal boundary and consists of approximately 130 miles of pipe and approximately 8,250 structures. The pipes range in age, size, and material types that include vitrified clay (VC), corrugated metal (CMP), reinforced concrete (RCP), ductile iron (DI), polyvinyl chloride (PVC), and high density polyethylene (HDPE). The exact age of the pipes is unknown but could be generally understood to be zero to 80+ years old. The sizes of the



pipes range from four inches to ninety six inches in diameter. Structures include junction boxes, drainage inlets, and catch basins and are either brick, cinder block, precast concrete, or cast in place concrete. The City owns and maintains the stormwater conveyance system located within, the right-of-way, City owned land, and City held easements on private land. The City does not own and maintain the stormwater conveyance system owned by other public bodies or located on privately owned land without an easement. Approximately 33% of the stormwater pipes and 28% of the stormwater structures located within the municipal boundary are City owned. The entire stormwater conveyance network ultimately discharges to local streams,



and rivers, drainage ways, floodplains, and low lying areas. Approximately 13 miles of the stormwater conveyance system carry streams that have been piped.

The combination of an integrated and co-mingled privately and publically owned stormwater conveyance system that ranges in age, condition, and material type presents many challenges to infrastructure and asset management and maintenance. The deterioration of the City owned stormwater infrastructure can cause clogging, sinkholes, and drainage and erosion issues. Of particular vulnerability are VC and CMP pipes which are prone to deterioration due to the nature of the material and the age of installation.

The City has had an active Stormwater Conveyance System Rehabilitation Program since 2010.

The work encompasses the rehabilitation, replacement, and repair of VC and CMP pipes and associated structures located in the City right of way and on City owned parcels. In addition, emergency repairs are completed in a timely manner as they arise, often in response to sinkholes and subsidence in City streets and sidewalks.

For FY2014, \$619,708 has been spent on City stormwater conveyance system projects.

## **SECTION III: RIVANNA WATER AND SEWER AUTHORITY**

### ***A. Rivanna Water and Sewer Authority (RWSA) Capital Budget***

The City's water and wastewater service supplier, RWSA, has developed a five-year Capital Improvement Plan (CIP) to ensure that they can provide quality service, satisfy regulatory requirements and meet the water supply and wastewater treatment requirements for their customers, the City of Charlottesville (City) and Albemarle County Service Authority (ACSA). (For a detailed description of RWSA's Capital Improvement Plan, Fiscal Years 2015-2109, and Adopted January 27, 2015, please see

[www.rivanna.org/documents/agendas/agenda\\_jan27\\_2015\\_doc7b.pdf](http://www.rivanna.org/documents/agendas/agenda_jan27_2015_doc7b.pdf).)

RWSA's capital plan for urban water (the component of the CIP that relates to urban expenditures) totals \$53.8M for water projects, with \$2.3M previously spend, leaving a 5-year CIP for urban projects of \$51.5M. The urban wastewater totals \$64.3M to be spent on wastewater projects, (\$19.5M has been previously spent).

During the past year several capital projects were completed or are very near completion, and as such are being removed from the 2015-2019 CIP. These projects account for approximately \$27.3M or 18% of FY2014-2018 CIP and include:

- New Ragged Mountain Dam Construction
- Mitigation Plan Implementation
- Valve Repair – Replacement (Phase1)
- Interceptor Sewer & Manhole Repair

The total 5-year 2015-2019 CIP is approximately \$135.5M, with the previous expenditures on active projects totaling approximately \$22.5M, leaving a net adopted 5-year projected expenditure of \$113.0M. As outlined to the Board in October 2014, the adopted 5-Year Capital Improvement Plan does not include any new projects. There are a few projects, where the budgets have been modified based on prior Board action or the anticipated project requirements necessitate funding adjustments. There are also two projects where the anticipated funding need has been reduced. The largest single adopted project funding increase is for the Observatory Water Treatment Plant. The current CIP now captures the final year of the originally anticipated 5-year project window. The projects with significant changes include:

- Observatory Water Treatment Plant Improvements (\$7.84 million existing / \$9.25 million adopted)
- Urban Water Granular Activated Carbon (\$18.38 million existing / \$18.76 million

adopted)

- South Fork Rivanna Dam – Safety Improvements (\$0.35 million existing / \$0.25 million Adopted)
- Moores Creek AWRRF Odor Control – Phase 2 (\$2.0 million existing / \$9.33 million adopted)

## **SECTION IV: WATER UTILITY**

### **A. *Water Rate Structure***

The water rates recommended and adopted for FY2015 continue to include seasonal water rates as approved by City Council in February, 2004. The rates incorporate a 30% spread between the lower winter rates (October through April) and the higher summer rates (May through September), when water is more likely to be in scarce supply. The rates recommended in this report for FY2016 have been prepared on this same basis.

### **B. *Fiscal Year 2016 Budget and Rate Impact***

As shown in Exhibit IV-A, the total water expenditures of approximately \$10.529 million has increased by 1.4% or \$140,495 over last year. Significant portions of the budget are described below:

- An increase in the cost of water purchased from RWSA. This increase from last year's budget is the result of a net change of 3.49% in wholesale rates. The operating portion of the charge to the City rose by 1.78%. The debt service portion of the rate rose 6.43%. This is the needed increase to support the 5 year CIP budget for the City's portion of urban water. The rate being charged by RWSA is \$20.615/mcf.
- An increase in the cost of operations and maintenance of \$3,178, or 0.52%. Fixed cost increases are being offset by reductions in other areas, however there is an increase in the City fee to the State for water operations. Since it is a fee associated with the number of connections (which has increased) and a cost per connection (which has increased) the amount paid to the state is increasing this year.
- The Water Conservation Budget is virtually unchanged from the FY2015 budget. A slight increase in salary is offset by a reduction in retirement contributions. For a list of the programs supported by Water Conservation please see pages 24 and 25 of this report.
- Payment in lieu of taxes (PILOT) is increasing by \$61,668 or 12.1%. The City's PILOT is based on 6% of budgeted water sales from the prior year.

- The Water Utility's contribution to support services provided by City government, indirect costs, is decreasing \$31,451 or -19.3%. Indirect costs are payments by the Utilities to support overhead and administrative costs essential to operating the government and providing services to the public.
- The Utility Billing Office (UBO) budget is increasing \$18,268 or 1.1%. One-sixth of the budget is assigned to the Water Utility. The remainder is assigned to Wastewater and Gas Utility budgets. This represents a \$3,045 increase to be funded by the water rate. The increase stems from increased charges to UBO for accepting credit card payments for utility bills.
- Meter Reading budget is decreasing \$1,916 (0.5%). The decrease is the result of a reduction in fixed charges to the division. As with the UBO budget, one-sixth of the budget is assigned to the Water Utility, which represents a \$319 decline. The remainder is assigned to Wastewater and Gas Utility budgets.
- A decrease of \$2,017 for the Computer support systems (formerly called Integrated Information Systems), the Utilities transfer to support the City's computer systems.
- No change for debt service funding to support capital projects associated with the Water Utility.

Based on the approved budget, the City's water rate per thousand cubic feet (mcf) will increase from \$50.27 to \$52.37, an increase of 4.2% on a composite basis. Under Council's direction for seasonal rates, the actual rates will be as follows:

- Months of May – September - \$60.31/mcf
- Months of October – April - \$46.39/mcf

This represents a 30% spread in summer vs. winter rates. These rates are designed to be "revenue neutral" over the course of a year. A seasonal rate structure is used by many localities as a way to promote water conservation during the peak usage months.

The rate for the UVA's central system, under a separate contract with the City, will increase from \$24.32/mcf to \$25.12 per mcf (3.3%). UVA's rate is determined by a 1981 contract. The primary factor resulting in the rate increase is the increase in the wholesale rate from RWSA.

### **C. *Rate Stabilization Funds***

The purpose of rate stabilization revenue is to mitigate year-to-year fluctuations in utility rates to customers. In general, the rate stabilization revenues should not be used to artificially suppress rates (i.e., to sustain rates at levels below the costs of service), but to enable smooth or level annual increases to rates despite fluctuating changes in expenses (i.e. primarily caused by increases in debt service) or variations in annual revenue received. The City of Charlottesville's fund is comprised primarily of three sources of revenue; cash over and above the working capital requirement, funds received when water sales exceeds budgeted expectations in any given year, and facility fee revenue.

The funds will again be used to stabilize rates. The amount to be used will be \$500,000 in FY2016. Since the use of funds are \$145,000 less than that used in FY2015 the result will be an increase in rate of \$1.00/mcf higher than in FY2015. However, using the \$500,000 produces a rate \$3.43/mcf lower than that if the funds were not utilized. The remaining balance of the rate stabilization fund plus the additional revenue to be collected in future years will be used to offset a portion of increases to our customers' water utility rates. In future years it is projected that debt service, both for the City and RWSA, will increase. When combined with declining water usage and water sales, these trends will put upward pressure on rates. (For a projection of future rates, see Section IX-A.)

### **D. *Factors Influencing Water Rates***

There are several factors that influence the change in rate needed for the Water Utility to operate on a self-supporting basis. Changes in wholesale water rates from RWSA, rate stabilization, debt service changes, City water operating expenses and revenue received from fees and other charges, changes in wholesale volumes purchased or retail volumes sold and water lost can each potentially impact the water rate calculation. In the current recommendation, the factors mentioned may impact the magnitude of the rate change in some way. Increasing wholesale rates from our supplier increase the City's rate by \$0.88. A decrease in the use of rate stabilization funds increases the rate by \$1.00. Since there is no change in debt service expense there is no impact on the rate. The increase in operating expenses primarily from changes in the PILOT increases the rate by \$0.21. Finally, the volume sold to customers and purchased from RWSA is declining slightly, increasing the water rate \$0.01. All changes increase the rate from \$50.27/mcf in FY2015 to \$52.37/mcf in FY2016. The following chart illustrates the effects each component has on the adopted rate.

**Figure 3: Components of Adopted Water Rate**

## Impacts on Water Rate (per 1,000 cf)

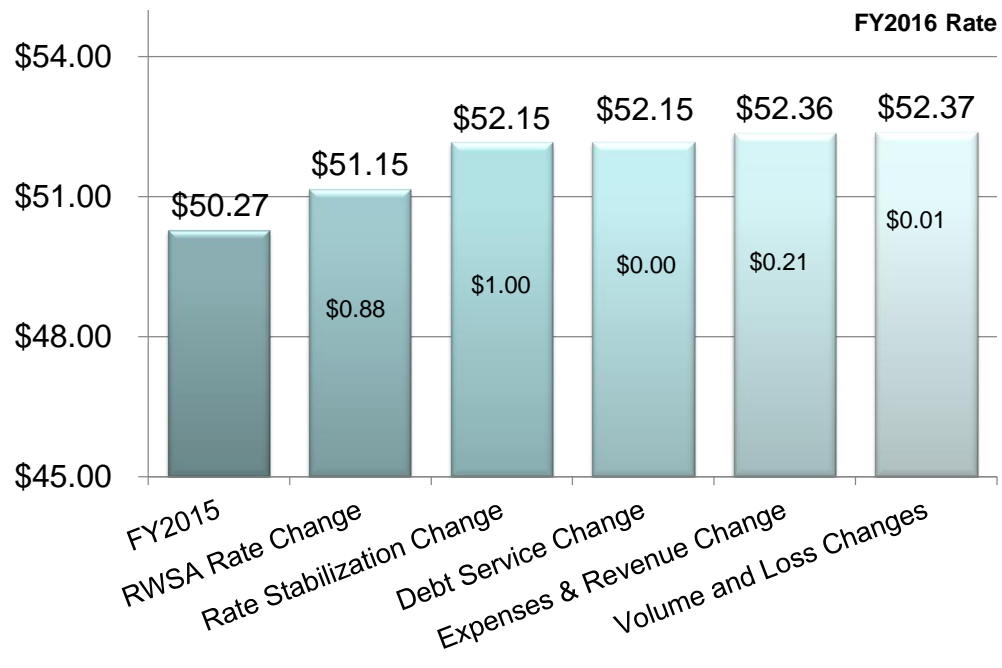
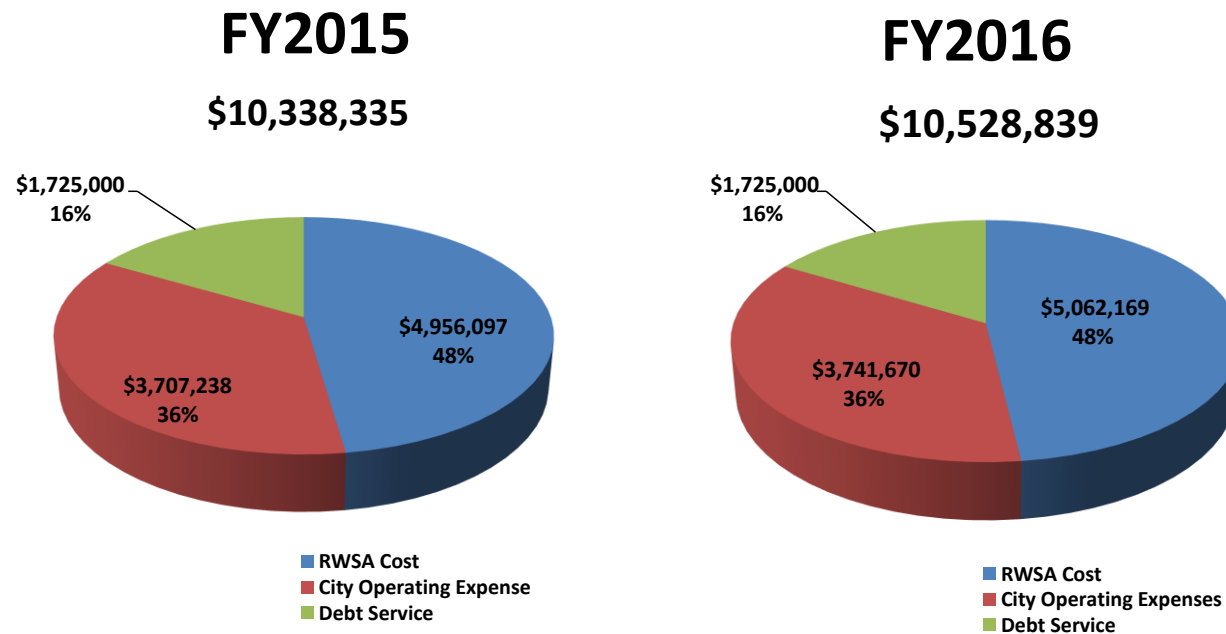


Figure 4: Changes in Water Rate Expenses – Biennial Comparison

## Water Expense Comparison



**Water Expense Comparison:**

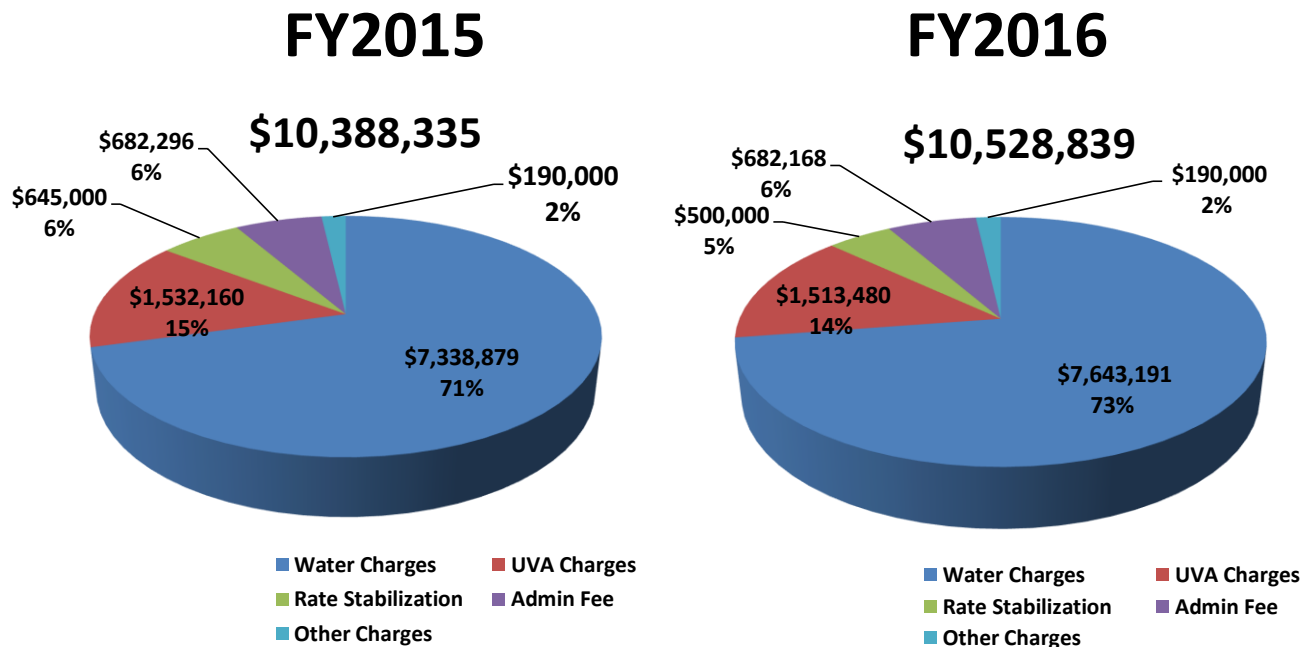
The City's water wholesale rate from RWSA increased 3.49% from FY2015 to the FY2016 rate of \$20.615/mcf. This increase in rate, coupled with a slight decrease in volume purchased (-1.31%), results in an increase in wholesale water purchase cost of just over \$100,000. Operating expenses for the Utility are forecast to increase by \$34,432 due primarily to increases in PILOT being offset by Indirect Costs to the utility. The City's debt service is remaining constant in FY2016 at \$1,725,000. Debt service is used to support capital projects associated with improvement to the City's water delivery system.

**Water Revenue Comparison:**

An increase of \$140,594 or (1.4%) in water revenue is projected from FY2015 to FY2016. The factors affecting this change include water charges collected from all City customers, UVa payments, rate stabilization funding, administrative fees, and other charges. Water charges, revenue that is received directly from purchases of water by City customers, are projected to increase \$804,303 (11%). This increase is offset by reductions in other categories. There is a projected decline in projected revenue from UVa attributed primarily to a decrease in water usage. The rate stabilization revenue is projected to decrease \$145,000. While it is declining, rate stabilization decreases the rate charged to customers by \$3.43. Last, administrative fees, the \$4 per account monthly charge, have decreased slightly due to a revision in projections.

Figure 5: Changes in Water Rate Revenue – Biennial Comparison

## Water Revenue Comparison



## **E. *Facility Fee Recommendations***

Facility Fees are intended to provide funding to finance all or part of capital improvements required to meet system demands necessary to serve new customers. Existing users, through service charges and other charges, have developed a valuable public capital facility, and the facility charge to new users is designed to recognize the “current cost” or “anticipated future cost” of providing the capacity necessary to serve additional users. Existing customers benefit greatly from these “system development” charges because much of the cost of system expansion is shifted to the new development. Therefore, system expansion is supported through the service charge rather than being built into the rate structure, which would impact existing customers as well.

The fee setting methodology typically involves new users paying a proportionate share of the total “system value” or a share of the total available capacity in the system. The charge is computed by establishing a fixed asset value under a historical or replacement cost basis, and allocating this cost over the total number of units of service. An equivalent residential connection (ERC) is a means of relating large-use customers to a base customer, typically a single-family unit served by a 5/8" water meter. An ERC is expressed as a ratio of the base customer unit. It should be recognized that large-use customers use a higher share of system capacity and should equitably pay a higher proportionate share of facility fees.

The facility fees allow for new customers to “buy in” to the current system and contribute toward the City’s adopted capital improvements plan for needed rehabilitation. The facility fee also provides support for the City’s share of RWSA’s facilities.

In FY2009, the City Council adopted an increase in the connection fee for new water and sewer connections for all water meter sizes. City staff recommended replacing the \$800 connection fee established in FY2008 with the new Water Facility Fees and Sewer Facility Fees. A facility fee or “system development charge” is levied to support existing or planned future capital costs necessary to meet the service needs of new water customers. City Council approved that the fee be increased in FY2013 to more accurately reflect the cost of adding additional water and wastewater lines. The increase in the charge now more closely represents the actual cost to provide new service as well as the cost of the impact of new connections on the City’s and RWSA’s water and sewer facilities and their ability to supply the increased demand. It is also designed to recover the capital costs that the City and RWSA will bear in the near future to

maintain, rehabilitate, and expand their facilities in order to continue to meet future supply demands for existing and new customers. No fee increases of the standard fee have been adopted for FY2016.

Currently the City offers a reduced water facility fee for affordable housing for developers. For a description of the program please see City Code Sec. 31-102.1 [https://www.municode.com/library/va/charlottesville/codes/code\\_of\\_ordinances?nodeId=CO\\_C\\_H31UT\\_ARTIIIWASEGE](https://www.municode.com/library/va/charlottesville/codes/code_of_ordinances?nodeId=CO_C_H31UT_ARTIIIWASEGE). Based on feedback from City Council during last year's rate-setting process, staff is proposing that the fee for a meter larger than 5/8", whether for water or wastewater, be 25% of the standard facility fee charged by the City. The current charge is \$800 regardless of meter size. Please see the table below.

**Figure 6: Adopted Water Facility Fees**

**ADOPTED FY2016 WATER FACILITY FEES**

Meter Size	ERC	Current City Water Facility Fee	Adopted Water Facility Fee	Adopted Fee is higher by
5/8"	1	\$3,100	\$3,100	\$0
1"	2.5	\$7,750	\$7,750	\$0
1.5"	5	\$15,500	\$15,500	\$0
2"	8	\$24,800	\$24,800	\$0
3"	15	\$46,500	\$46,500	\$0
4"	25	\$77,500	\$77,500	\$0
6"	50	\$155,000	\$155,000	\$0

**LOW-INCOME HOUSING FACILITY FEE FOR FY2016**

Meter Size	ERC	Original Low-Income Housing Fee	Adopted Low-Income Housing Fee	Adopted Fee is higher by
5/8"	1	\$800	\$800	\$0
1"	2.5	\$800	\$1,938	\$1,138
1.5"	5	\$800	\$3,875	\$3,075
2"	8	\$800	\$6,200	\$5,400
3"	15	\$800	\$11,625	\$10,825
4"	25	\$800	\$19,375	\$18,575
6"	50	\$800	\$38,750	\$37,950

## **F. *Water Conservation Program***

The City of Charlottesville continues to work with City customers to partner to find ways to conserve water. In FY2010 the average single-family home used 689 cubic feet (cf) of water per month. This has declined each year to a level of 437 cubic feet/month in FY2015. The City's water conservation program has multiple initiatives in place. Some highlights of our program include the distribution of over 10,000 free indoor water conservation kits, the development and dissemination of Water-Wise landscaping information, and a low-flow toilet rebate program, which has replaced 5,450 high consumption toilets since 2003.

Not only does the City provide resources and rebates to save water, but we also maintain an extensive public outreach campaign. This includes educational activities at summer camps, educating the public at the Fix-A-Leak Family 5K, distributing water-saving information and promotional items at dozens of community events every year such as Kid\*Vention and the Earth Day EcoFair, and hosting rain barrel workshops. The City's water conservation message has also been conveyed via the internet (online ads and social media), print, radio, and television. We have continued to be an active participant in the Alliance for Water Efficiency (AWE) and the Environmental Protection Agency's (EPA) WaterSense program.

Replacing water distribution mains and service lines is an important component in water conservation. Aging pipes are a primary cause of lost water in a system. Since fiscal year 2007, the City has been replacing aged water lines and service lines, which reduces leaks and supports the infrastructure improvements outlined in Section II-A. The City has also performed multiple, system wide leak detection surveys, most recently in September of 2014. With 181 miles of water lines, 103 leaks were found during the FY2014 (20 of these leaks were found during the annual leak audit), and there has been a downward trend in water leaks since FY2011. The City aims to respond and repair leaks expeditiously to minimize water loss and service impacts. Leak audit surveys were completed in ten of the past twelve years and will continue annually. The next survey is scheduled for summer 2015 and will be consistent with past years covering 100% of the distribution system.

The American Water Works Association (AWWA) recommends that all utilities perform a water audit every year. This audit is intended to identify sources of non-revenue water and to focus efforts in reducing those water losses. Initial audits from FY2010 through FY2012 resulted in improved recordkeeping of water use by City contractors and more detailed procedures for annual fire hydrant testing. Water audits completed for FY2013 and FY2014 have used the

same procedure and resulted in improved data collection procedures specifically quantifying unbilled and unmetered water usage. In addition, FY2014 water loss was better quantified by more accurate calculations of loss from water leaks, unmetered unbilled water usage, and water meter error.

Based on the water audit recommendations, a water meter calibration and replacement project was implemented starting in FY2014. The City tested 5% of 5/8-inch meters, 15% of 1-inch meters, 17% of 1.5-inch meters, 17% of 2-inch meters, 60% of 3-inch meters, 44% of 4-inch meters, and 100% of 6-inch meters. Results from this meter testing and calibration effort indicated that all meters need to be regularly tested with intervals determined by the meter size. The meter replacement project also revealed a need to upgrade meter vaults on many of our large meters to improve access and meet current standards. In 2014, the City began a program to upgrade infrastructure associated with 2-inch water meters, and as part of this program, twenty 2-inch meters have been replaced. In 2015, the meter replacement program will be expanded to include all meters 1.5-inch and above. Also as part of the meter replacement program, the City is evaluating customer consumption to verify that the meters are appropriately sized. Because regular water meters less accurately measure low flow rates, extra-sensitive “low-flow” meters will be installed in some situations.

The table below outlines current water conservation efforts implemented by the City.

**Figure 7: Water Conservation Activities**

Program Initiatives	Description
Rebates: Low Flow Toilets & Rain Barrels	Low flow toilet rebates issued in FY2014 totaled 305; a revised program to rebate only WaterSense labeled toilets began in July 2012. Rain barrel rebates issued in FY2014 totaled 63, and rebates issued since 2009 (start of program) totaled 653.
Public Awareness Campaign for Free Indoor Water Conservation Kits	Multiple giveaway events were held during 2014 and additional events are planned for the 2015 calendar. The City partnered with the Local Energy Alliance Program (LEAP) to distribute water conservation kits as part of their home energy check-ups; Approximately 500 kits are distributed per year at various water conservation events
Water-Wise Landscaping Literature Distribution	Distributed plant lists and brochures to local nurseries in 2014 as well as educating the public on Water-Wise Landscaping during community events.
Online Residential Water Use Calculator	This online tool, available on the city website, is designed specifically for Charlottesville residents to better understand their water usage.
Rain Barrel Workshop	Hosted one rain barrel workshop in Spring 2014 with 40 participants; another workshop will be scheduled for Spring/Summer 2015.

<b>Program Initiatives</b>	<b>Description</b>
Community Attention Student Volunteer Event (Blue Team)	Worked with Community Attention to give youth a volunteer opportunity to go door to door and distribute indoor conservations kits and rebate information. 15 high school students participated and went to over 200 houses over the summer.
Carwash Certification	Maintained the joint efforts of the City and Albemarle County Service Authority so more businesses will sign up for water conservation carwash certification.
Regular Ad Campaign, Year Round- Check, Twist, Replace	The water conservation program runs yearly ad campaigns using social media, print, television, radio, and online ads to promote the current WaterSense sponsored water conservation campaign: "Check, Twist, Replace".
Multi-Family Homes' Toilet Retrofits	This program has been in existence since June 2011; since then, fifteen apartment buildings have received rebates to replace their high consumption toilets. In FY2014, 2 apartments were retrofitted for a total of 26 low flow toilets, and in FY2015, 212 low flow toilets were replaced in a large multi-family complex.
System Leak Detection Audit	Annual Water System Wide Survey found 20 leaks in FY2014. The leak detection audit for FY2015 will occur in summer 2015, with all discovered leaks on the public side of the system are then designated as high priority work orders.
Water Line Replacement	Continued Water Department program to replace aging distribution lines and public side of service laterals, preventing wasteful water loss.
System Water Audit	Continue to perform AWWA audit each fiscal year and assess areas of improvement in water utility infrastructure, water accountability, and water conservation.
Water Meter Recalibration & Testing	Starting in 2013, approximately 10% of all water meters were tested and calibrated. Since the initial set of meters were tested, it was determined a Water Meter Replacement Project would be implemented. For FY2015, meter recalibration and testing is on track to continue testing starting with the larger sized meters.
Water Meter Replacement Project	Based on meter testing and the AWWA water audit recommendations, all water meters at or above 1.5-inch will be replaced. In addition all meters set to be replaced will be assessed based off water consumption, to select the appropriate meter for application. So far only a portion of 2-inch meters have been replaced, but the remaining large meters are set for replacement in FY2015 and FY2016.
Fix a Leak Family 5k	The second annual race to highlight EPA WaterSense's nationwide Fix a Leak Week was conducted on March 22, 2014 at Pen Park with seventy-seven runners participating. This race is nationally recognized by the EPA. The third annual race is scheduled for March 2015.
"I'm For Water" Campaign & The Mayor's Challenge	Participated in the national Mayor's Challenge. Cities compete to get the most residents to take the EPA WaterSense pledge "I'm For Water" and support water conservation practices in their area. Charlottesville came in 3 <sup>rd</sup> in their population size in April 2014. The City plans on participating in April 2015.
Community Survey	Questions developed with the UVa Center for Public Service in 2012 to quantify outreach results were included in the 2013 and 2014 Jefferson Area Community Survey. Questions were asked regarding utility bills, the rebate program, and lawncare/watering habits.

## **G. *Toilet and Rain Barrel Rebate Programs***

In support of water conservation efforts, the City adopted a Toilet Replacement Rebate Program in 2003 and a Rain Barrel Rebate Program in 2009. The toilet replacement rebate program has been modified over the years to better address current conservation concerns. Currently the program provides a rebate of up to \$100 to any City water customer who purchases and installs an EPA WaterSense toilet to replace older high flow models. These WaterSense models use significantly less water, resulting in water savings thus dollar savings every year. Residential customers may replace up to three (3) toilets at a given residence built before 1994. In addition, a new program, which allows owners of multi-unit apartment complexes to replace two (2) toilets per unit, was expanded in FY2011. Commercial property owners may replace up to two (2) toilets and receive up to \$80 per replacement. The following chart shows the program participation since adoption of the program. The program will be funded at \$40,000 in FY2016.

**Figure 8: Historic Participation in Toilet Rebate Program**

Toilet Rebate				
Granted in Fiscal Year <sup>1</sup>	Total # of Customers	Total # of Toilets rebated	Total \$ rebate	Average Rebate / customer (calculated)
2014	219	305	\$ 29,544.10	\$ 135
2013	358	573	\$ 54,112.67	\$ 151
2012	258	544	\$ 54,185.67	\$ 210
2011	363	599	\$ 61,864.86	\$ 170
2010	286	367	\$ 36,401.41	\$ 127
2009	219	310	\$ 31,085.77	\$ 142
2008	180	302	\$ 30,372.22	\$ 169
2007	194	232	\$ 23,844.95	\$ 123
2006	224	256	\$ 25,513.55	\$ 114
2005	240	285	\$ 28,328.74	\$ 118
2004	361	403	\$ 39,939.33	\$ 111
2003	1,195	1,274	\$ 125,316.54	\$ 105
Total	4,097	5,450	\$ 540,509.81	

<sup>1</sup> In FY2011 the toilet rebate program was expanded to include owners of multi-unit apartment buildings.

The Rain Barrel Rebate Program was started in 2009 to encourage City homeowners to use harvested rainwater for numerous outside uses like washing a car, watering plants, and irrigating landscapes. The program provides up to two (2) \$30 rebates for rain barrels purchased per service address after 4/20/2009. The City has provided 653 rebates since the project started in 2009, and 63 rebates in FY2014. In addition, the City provides rain barrel workshops periodically each year, which helps City residents construct rain barrels for their use and educates them of the importance of rain water harvesting and water conservation.

## **H. *Water Assistance Program***

A Water Assistance Program (WAP) was adopted in FY2012 by City Council to assist City water customers experiencing hardship in making timely or full payments of their water utility bill. UBO has experienced numerous occasions when customers, unable to pay their bills due to financial hardship, had their services discontinued. The WAP program is intended only for residential customers, whether owners or renters of property. It is not intended for landlords or commercial property accounts and will be administered in a fashion similar to the Gas Assistance Program (GAP), which has been in place since 2002. 180 customers benefited from the WAP in FY2014, receiving a total of \$14,245. The maximum allotment per household per year is \$150 or three times the customer's normal monthly average bill, whichever is less. \$25,000 was initially dedicated for this purpose. \$25,000 has been included in the water budget in FY2016. Comparable assistance has been adopted in the wastewater fund through the Wastewater Assistance Program (WWAP).

## **I. *Water Utility Capital Projects***

The current capital projects in each entity's five-year capital plan are listed below. The City updates its capital plan annually with the 5 year capital plan being FY2016 – FY2020. RWSA adopted its Capital Improvement Plan January 27, 2015 (FY2015 - FY2019).

**Figure 9: RWSA 5 Year Capital Improvement Plan for Water**

<b><u>City Capital Projects – Water System</u></b>	<b><u>Projected Five Year Capital Cost</u></b>
Water Line replacement (Annual Service Contract) .....	\$ 2,500,000
Water Meter Replacement .....	\$ 1,000,000
Replacements of Valves & Hydrants .....	\$ 500,000
<b>Total City Capital Water</b>	<b>\$ 4,000,000</b>

<b><u>RWSA Urban Water Projects</u></b>	<b><u>Projected</u></b>
<b><u>Five Year Capital Cost</u></b>	
Ragged Mtn. Dam Construction .....	\$ 2,580,535
Mitigation Plan Implementation.....	\$ 60,000
South Fork Reservoir to Ragged Mtn. Pipeline .....	\$ 2,295,000
South Fork Reservoir Dredging.....	\$ 3,500,000
Observatory WTP Improvements .....	\$ 9,250,000
Route 29 Pump Station .....	\$ 1,900,000
Alderman Road Pump Station Improvement.....	\$ 702,000

Valve Repair – Replacement Phase 2.....	\$ 500,000
Urban Water Granular Activated Carbon.....	\$ 18,760,494
South Fork Rivanna Water System .....	\$ 6,390,000
Stillhouse Tank Modification Study.....	\$ 580,000
Pantops Tank Roof Rafter Repair.....	\$ 120,000
Urban Water Meter Wholesale Master Metering.....	\$ 6,400,000
North Fork Water System.....	<u>\$ 800,000</u>
<b>Total RWSA Urban Water</b>	<b>\$ 53,838,029</b>

## J. Exhibits

### EXHIBIT IV-A WATER UTILITY TWO YEAR BUDGET COMPARISON

<u>Revenue Required</u>	<u>FY2015 BUDGET</u>	<u>FY2016 BUDGET</u>	<u>PERCENT CHANGE</u>
Water purchases	\$ 4,956,097	\$ 5,062,169	2.1 %
Operations & maintenance	2,327,537	2,330,715	0.1
Water conservation budget	193,481	193,809	0.2
Toilet Rebate Program	40,000	40,000	-
Payment in lieu of taxes	511,532	573,200	12.1
Indirect costs	163,174	131,723	(19.3)
Utility billing office budget	273,605	276,650	1.1
Meter reading budget	60,964	60,645	(0.5)
Water assistance program	25,000	25,000	
Vehicle replacement budget	73,029	73,029	-
Computer system support	23,917	21,900	(8.4)
Bad debts	10,000	10,000	-
Interest on deposits	5,000	5,000	-
Debt service funding	<u>\$ 1,725,000</u>	<u>\$ 1,725,000</u>	- %
Total revenue required	\$10,388,335	\$10,528,839	1.4 %
Less revenues not related to water use:			
Connection service charges	\$ 125,000	\$ 125,000	- %
Rate stabilization	645,000	500,000	(22.5)
Other fees and charges	<u>65,000</u>	<u>65,000</u>	- %
Total	\$ 835,000	\$ 690,000	(17.4) %
Revenue required from water charges	\$ 9,553,335	\$ 9,838,839	3.0 %
LESS UVa central charges	1,532,160	1,513,480	(1.2)
Balance to be recovered by City Water Sales	\$ 8,021,175	\$ 8,325,359	3.8 %
Required Percent Increase in Overall Charges	12.07%	3.79%	
Minimum Monthly Charge	4.00	4.00	
Minimum charges	<u>\$ 682,296</u>	<u>\$ 682,168</u>	(0.0)
Balance to be recovered through rate above minimum	\$ 7,338,879	\$ 7,643,191	4.2 %
Volume (MCF) above minimum	146,000	145,943	(0.0)
Rate per MCF	<u>\$ 50.27</u>	<u>\$ 52.37</u>	4.2 %

**EXHIBIT III-B  
WATER RATE CALCULATION  
FY2016**

Revenue Required:	<u>MCF</u>	<u>Amount</u>
Water purchases	245,559	\$ 5,062,169
Operations & maintenance		2,330,715
Water conservation budget		193,809
Toilet Rebate Program		40,000
Payment in lieu of taxes		573,200
Indirect costs		131,723
Utility billing office budget		276,650
Meter reading budget		60,645
Water assistance program		25,000
Vehicle replacement budget		73,029
Computer system support		21,900
Bad debts		10,000
Interest on deposits		5,000
Debt service funding		<u>\$ 1,725,000</u>
 Total revenue required		 \$ 10,528,839
 Less revenues not related to water use:		
Connection service charges		\$ 125,000
Rate stabilization		500,000
Other fees and charges		<u>\$ 65,000</u>
 Total other revenues		 \$ 690,000
 Revenue required from water charges		 \$ 9,838,839
 Less fixed water charges and uses:		
Anticipated water loss	16.0 %	39,366
UVa central charges @ <sup>1</sup>	\$ 25.12	60,250
Monthly customer charges @	\$ 4.00	<u>\$ 682,168</u>
 Total fixed water charges		 \$ 2,195,648
 Balance to recover through rate above minimum	145,943	<u>\$ 7,643,191</u>
 Rate required per MCF above minimum		 <u>\$ 52.37</u>

**ALTERNATE RATE WITH NEUTRAL WINTER / SUMMER DIFFERENTIAL (30%)**

Rate required per MCF above minimum - Winter	<u><u>\$ 46.39</u></u>
Rate required per MCF above minimum - Summer	<u><u>\$ 60.31</u></u>

1 According to the 1981 agreement, UVa is charged 100% of the wholesale rate the City pays to RWSA plus 25% of the general operation, administrative overhead, and assessment and collection cost of the City's retail rate.

**EXHIBIT IV-C  
WATER UTILITY  
PROJECTED REVENUE REQUIREMENTS**

<b><u>Funds Required</u></b>	<b><u>FY2015</u></b>	<b><u>FY2016</u></b>
Water purchases	\$ 4,956,097	\$ 5,062,169
Operations & maintenance	2,327,537	2,330,715
Water conservation budget	193,481	193,809
Toilet Rebate Program	40,000	40,000
Payment in lieu of taxes	511,532	573,200
Indirect costs	163,174	131,723
Utility billing office budget	273,605	276,650
Meter reading budget	60,964	60,645
Water assistance program	25,000	25,000
Vehicle replacement budget	73,029	73,029
Computer system support	23,917	21,900
Bad debts	10,000	10,000
Interest on deposits	5,000	5,000
Debt service funding	<u>\$ 1,725,000</u>	<u>\$ 1,725,000</u>
 Total Funds Required	 \$10,388,335	 \$10,528,839
 <b><u>Funds Provided</u></b>		
Water Charges	\$ 9,553,335	\$ 9,838,839
Other Revenue	<u>835,000</u>	<u>690,000</u>
 Total Funds Provided	 \$10,388,335	 \$10,528,839
 Gain (Loss)	 <u>\$ 0</u>	 <u>\$ 0</u>

**EXHIBIT IV-D  
WATER RATE COMPARISON**

<b>MONTHLY USAGE</b>	<b>\$ 4.00 /</b>	<b>\$ 4.00 /</b>		
<b>(CUBIC FEET)</b>	<b>\$ 50.27</b>	<b>\$ 52.37</b>	<b>DOLLAR</b>	<b>PERCENT</b>
	<b>FY2015</b>	<b>FY2016</b>	<b>CHANGE</b>	<b>CHANGE</b>
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	14.05	14.47	0.42	2.99
300	19.08	19.71	0.63	3.30
437	25.97	26.89	0.92	3.54
750	41.70	43.28	1.58	3.79
1,000	54.27	56.37	2.10	3.87
2,000	104.54	108.74	4.20	4.02
3,000	154.81	161.11	6.30	4.07
5,000	255.35	265.85	10.50	4.11
10,000	506.70	527.70	21.00	4.14
100,000	\$ 5,031.00	\$ 5,241.00	\$ 210.00	4.17 %

Note: Average single-family customer uses 437 CF per month.

**EXHIBIT IV-E  
WATER RATE COMPARISON  
SEASONAL RATES**

**SUMMER RATES**

<b>MONTHLY USAGE</b>	<b>\$ 4.00 /</b>	<b>\$ 4.00 /</b>		
<b>(CUBIC FEET)</b>	<b>\$ 58.03</b>	<b>\$ 60.31</b>	<b>DOLLAR</b>	<b>PERCENT</b>
	<b>FY2015</b>	<b>FY2016</b>	<b>CHANGE</b>	<b>CHANGE</b>
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	15.61	16.06	0.45	2.88
300	21.41	22.09	0.68	3.18
<b>437</b>	<b>29.36</b>	<b>30.36</b>	<b>1.00</b>	<b>3.41</b>
750	47.52	49.23	1.71	3.60
1,000	62.03	64.31	2.28	3.68
2,000	120.06	124.62	4.56	3.80
3,000	178.09	184.93	6.84	3.84
5,000	294.15	305.55	11.40	3.88
10,000	584.30	607.10	22.80	3.90
100,000	\$ 5,807.00	\$ 6,035.00	\$ 228.00	3.93 %

Note: Average single-family customer uses 437 CF per month.

**WINTER RATES**

<b>MONTHLY USAGE</b>	<b>\$ 4.00 /</b>	<b>\$ 4.00 /</b>		
<b>(CUBIC FEET)</b>	<b>\$ 44.64</b>	<b>\$ 46.39</b>	<b>DOLLAR</b>	<b>PERCENT</b>
	<b>FY2015</b>	<b>FY2016</b>	<b>CHANGE</b>	<b>CHANGE</b>
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	12.93	13.28	0.35	2.71
300	17.39	17.92	0.53	3.05
<b>437</b>	<b>23.51</b>	<b>24.27</b>	<b>0.76</b>	<b>3.23</b>
750	37.48	38.79	1.31	3.50
1,000	48.64	50.39	1.75	3.60
2,000	93.28	96.78	3.50	3.75
3,000	137.92	143.17	5.25	3.81
5,000	227.20	235.94	8.74	3.85
10,000	450.40	467.89	17.49	3.88
100,000	\$ 4,468.00	\$ 4,642.88	\$ 174.88	3.91 %

Note: Average single-family customer uses 437 CF per month.

## **SECTION V: WASTEWATER UTILITY**

### **A. *Fiscal Year 2016 Budget and Rate Impact***

The wastewater rate is projected to increase from \$61.26/mcf to \$70.44/mcf in FY2016. As shown on Exhibit V-A, the wastewater operating budget of approximately \$13.423 million has increased by 7.31%, or \$914,141. This net increase is primarily due to factors described below:

- An increase of \$266,136 (2.13%) in the cost of treatment from RWSA. The wastewater treatment cost charged by RWSA accounts for 53.7% of the City's operating cost of the wastewater utility. RWSA has increased its composite rate charged to the City by 3.45%, from \$28.589/mcf to \$29.576/mcf. The composite rate is comprised of an operating component and a debt service component. The operating component is the portion needed to cover the City's share of RWSA's operating costs for wastewater treatment to the region. The operating portion of the rate is increasing by 1.19%, from \$13.225/mcf to \$13.382/mcf. The City will pay 54% of the total urban wastewater treatment costs borne by RWSA, its share relative to Albemarle County (46%). The City's relative share is based on historical flow figures. The amount of wastewater that RWSA forecasts will be treated is projected to be the same as last year. However, since the City's projected share has increased, its relative share is also increasing from 242,655 mcf to 247,233 mcf. The debt component of the rate charged is increasing from \$15.364/mcf to \$16.194/mcf, or 5.4%. The resulting combined rate charged by RWSA for wholesale water is \$29.576/mcf, a \$0.987/mcf increase.
- An increase in the cost of operations and maintenance of \$39,333 (2.07%) is primarily attributable to a net increase in personal service costs.
- An increase in the PILOT of \$46,623 (6.83%). This is due to an increase in the budgeted wastewater sales revenue from the prior year.
- Indirect costs are those costs associated with services provided by other City departments that support the wastewater utility. The City's indirect costs are declining by \$24,336.

- The Utility Billing Office (UBO) budget attributable to wastewater is increasing \$3,045 or 1.11%. One-sixth of the budget is assigned to the Wastewater Utility. The remainder is assigned to Water and Gas Utility budgets.
- Meter Reading budget attributable to wastewater is decreasing \$319 (-0.52%). As with the UBO budget, one-sixth of the budget is assigned to the Wastewater Utility. The remainder is assigned to Water and Gas Utility budgets.
- An increase of \$585,000 (24.38%) for debt service funding. A description of the projects that are planned to be funded can be found in Section II: Improving Infrastructure.

## **B. *RWSA's Fiscal Year 2016 Wholesale Rate***

Several major projects factor into the wholesale treatment rate from RWSA. Some of them are discussed below. Among them are the Rivanna Pump Station and Tunnel, Schenks Branch Interceptor Replacement, and the Moore's Creek Pump Station. The Schenks Branch Interceptor lies completely within the City of Charlottesville's boundaries and is solely dedicated to the movement and treatment of the City's wastewater, whereas the other projects are shared by the City and County. It should be noted that the localities continue to pay debt service, often, long after the project is completed. One of the major components impacting the City's debt service rate from RWSA is the Meadowcreek Interceptor project. The Meadowcreek Interceptor project included the replacement of approximately 22,000 linear feet (4.2 miles) of interceptor with larger diameter pipe to provide capacity for wet weather flow. Although the project has essentially been completed its debt service will continue to impact the City's debt service rate from RWSA. An update of RWSA's capital projects contained within their Adopted Capital Improvement Plan follows:

- Rivanna Pump Station and Tunnel: Pumping capacity between the Rivanna Interceptor in Riverview Park and the Moore's Creek Wastewater Treatment Plant needs to be expanded for wet weather peak flow from a current capacity of 24.5 mgd to a firm capacity of 53 mgd. Following the study of alternatives to provide additional pumping capacity, the RWSA Board selected Concept E for final design by Hazen and Sawyer at the December 28, 2011 Board of Directors Meeting. Concept E includes the construction of approximately 1,620 linear feet (1/3 of a mile) of an 8-foot diameter tunnel with a tunnel-boring machine. The new pump station will be located on the RWSA property and the design includes pumps capable of delivering a peak pumping rate equivalent to 53 mgd, electrical gear, influent grinders, self-cleaning wet well, odor control, back-up

power generation, SCADA control and integration, tie-ins to the existing systems, site and permitting work, storage building demolition and electrical relocation work, as well as architectural, structural and mechanical systems. The existing pump station at the entrance to Riverview Park will be demolished once the new pump station and tunnel are complete and in service. Hazen and Sawyer has finalized the design and prequalified contractors for the project. Bidding was held in November 2013 with construction starting in spring 2014.

- Schenks Branch Interceptor: The Schenks Branch Interceptor is located in the eastern part of the City of Charlottesville and ties into the Meadowcreek Interceptor. The interceptor was constructed in the mid-1950s of 21-inch clay and concrete pipe. The existing interceptor is undersized to serve present and future wet weather flows as determined by the City, and is to be upgraded to 30-inch pipe. The first portion of this sewer was constructed as part of the Meadowcreek Interceptor project. The second portion was constructed as part of the VDOT McIntire Road Extended Project in 2012. The third portion is being constructed as part of the McIntire/250 Interchange project. The rest of the upstream Interceptor in McIntire Road is currently in design and will be upgraded by RWSA in coordination with the City of Charlottesville's sewer upgrades. Project costs include betterment cost for the portions that are being replaced by VDOT and the design, permitting, easement acquisition, construction, construction observation/administration by the engineering consultant, and project contingencies for the rest of the interceptor.
- Digester Heating and Mixing Upgrade: Biosolids at the Moore's Creek Wastewater Treatment Plant (MCWWTP) are designed to be digested through an anaerobic (oxygen deficient) process using three heated digesters with a combined volume of 3.4 million gallons. For optimal results the temperature during digestion should be between 95 and 98 degrees Fahrenheit. This allows for biosolids volume degradation, as well as optimum bio-gas production which is then used for electricity generation and heating of the digesters. Currently the heat exchange and mixing systems within the digesters are old and have significant deficiencies that were confirmed following the completion of boiler facilities in the ENR project. Additionally, the aging gas compressors, concrete roofs and scrubbing system are failing. This project will update and improve the digester process and structural stability through improvements to heating, mixing and gas compression and roof replacement. The project was bid in August 2012 and the Board of

Directors approved the contract award to MEB Contractors at the November 2012 meeting. The total project cost includes design, permitting, construction, contingency, and construction administration/inspection. It is anticipated that this project will result in significant annual operational cost savings for the plant.

- Moore's Creek Wastewater Treatment Plant Odor Control – Phase 2: In 2007, RWSA prepared an Odor Control Master Plan for the Moore's Creek Advanced Wastewater Treatment Facility. The Plan outlined sources of odor within the facility, and highlighted the areas where odor was most likely to migrate off-site to the surrounding neighborhoods. In an effort to address these issues, the Board of Directors authorized the design and construction of Phase 1 odor control measures, which were incorporated into the Enhanced Nutrient Removal Project. By mid-2012, the majority of the construction work at the facility was complete. This work included relocating septage receiving away from the front gate; enclosing septage receiving; covering the influent channels of the Moore's Creek Pump Station and gravity thickeners and providing wet chemical odor scrubbing; providing high pressure water cannons for basin wash down, and switching from aerators to mixers in the equalization basins. Although the Phase 1 improvements have significantly enhanced odor control, recent outreach by RWSA to neighboring constituents has confirmed that the next phase of work is now required to achieve the community's goal. In an effort to continue to address odor migration from the site, the Phase 2 project proposes to cover the launderers and effluent weirs at the primary and in-plant clarifiers. Air from these enclosed areas will be moved by vacuum to a centralized chemical scrubber facility on the south side of the MCWWTP, which will also serve the new Rivanna Pump Station.
- Interceptor Sewer and Manhole Repair: This project is used to conduct condition assessment of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Planned projects include condition assessments of numerous interceptors. This project will also provide an allowance in budgeted funds to carry out future repairs. With the completion of this project expected in 2016, all RWSA interceptors will have undergone a condition assessment (except those replaced during the period with new pipe) since 2008, completing an 8-year cycle. Such periodic assessments of all sewer pipe reflects industry best practices and the maintenance expectations of federal and state regulators as a part of avoiding sanitary sewer overflows.

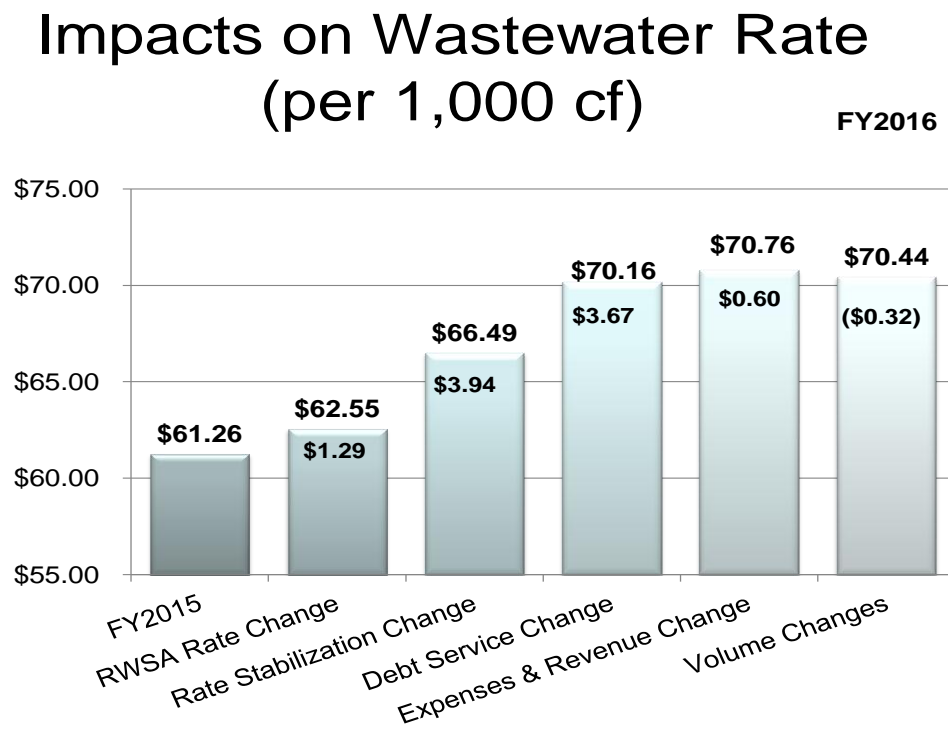
### C. *Rate Stabilization Funds*

Rate stabilization funds, in the amount of \$300,000, will be used in FY2016 to reduce wastewater rates to our customers by \$2.08. Expected use in FY2016 is \$550,000 less than that used in FY2015.

### D. *Factors Influencing Wastewater Rates*

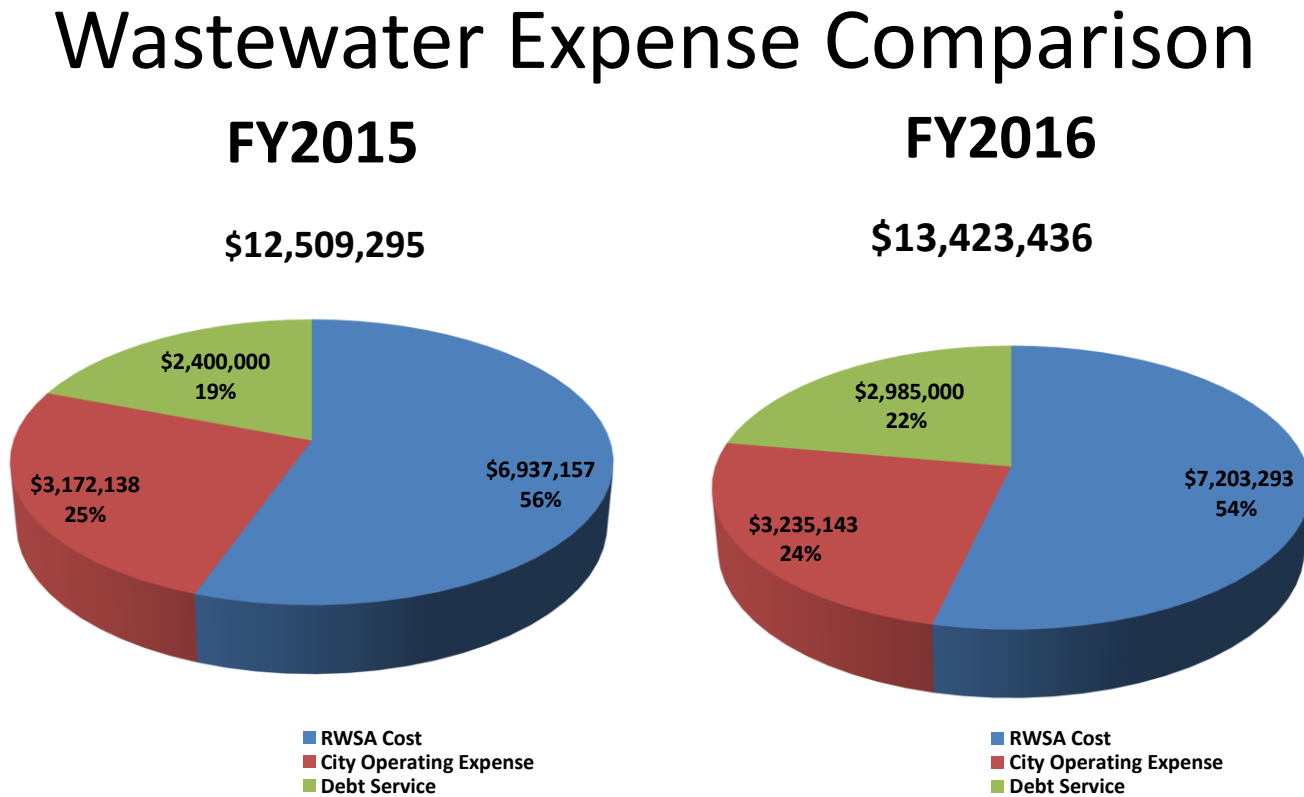
As with the Water Utility, there are several factors that influence the change in rates needed for the Wastewater Utility to operate on a self-supporting basis. Changes in wastewater treatment rates from RWSA, the amount of rate stabilization used to mitigate increases in rate increases, City wastewater operating expenses and revenue from other sources, changes in volumes treated by RWSA or expected to be billed to our City customers and the number of customers billed, can all potentially impact the wastewater rate calculation. The following chart illustrates the effects each component has on the adopted rate for FY2016.

**Figure 10: Components of Adopted Wastewater Rate**



The impact of each component on the final rate is depicted above. The increase in the treatment rate from RWSA, from \$28.589/mcf to \$29.576/mcf, increases the rate an additional \$1.29/mcf to \$62.55/mcf. Rate stabilization has been reduced to \$300,000 causing an increase to the rate to \$66.49, an increase of \$3.94/mcf. However, by using the rate stabilization funds of \$300,000 the rate is \$2.08/mcf lower than it would be without its use. Debt service has increased \$585,000 to \$2,985,000. This caused the rate to increase \$3.67 to \$70.16. Changes in indirect expenses result in an increase of the rate of \$2.68/mcf to \$58.85/mcf. The reduction in treatment volume decreases the per-unit cost necessary for the utility to break even and reduces the rate \$0.32 for a final rate per mcf of \$70.44.

Figure 11: Changes in Wastewater Rate Expenses – Biennial Comparison



### **Wastewater Expense Comparison:**

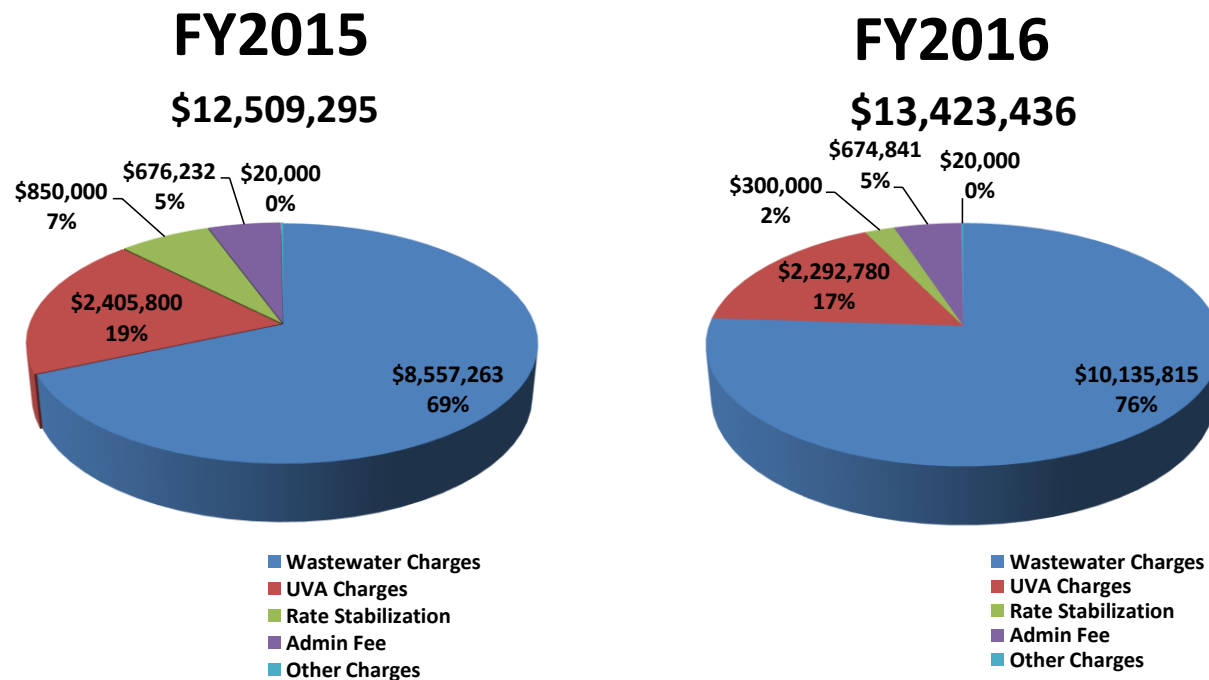
Changes in wastewater expenses occur for several reasons. The volume of wastewater generated by the City and treated by RWSA is expected to decline slightly; however there is an increase in the RWSA costs associated with wastewater treatment. Combining these two factors results in an increase of \$266,136 or (3.84%) in the cost attributable to RWSA. The increase in the City's operating expense (\$51,102) is primarily due to increased costs associated with the PILOT payment. The PILOT payment is based on budgeted sales revenue in the prior year. The City's debt service is increasing by \$585,000 to support capital projects associated with improvement projects to rehabilitate aging sewer infrastructure.

### **Wastewater Revenue Comparison:**

Wastewater revenue is projected to increase by \$914,141 (7.31%) between FY2015 and FY2016. There are five key factors affecting this increase. These include revenue collected from City customers through wastewater charges, collections from UVA, rate stabilization, administrative fees, and other service charges. UVA's volume is declining and factors influencing the rate will result in a decrease of \$113,020 (4.70%). Rate stabilization fees are declining by \$550,000 to \$300,000. Although rate stabilization is declining it should be noted that with rate stabilization the rate to retail customers is \$2.08 lower than it would be without using the funds. Administrative fees, the \$4 per month per account charge, are expected to decrease only slightly due to a re-estimation of the customer base. Other charges (primarily finance charges associated with late payments) are projected to remain the same as last year. The remaining balance, wastewater charges collected from City customers, is expected to increase \$1,878,552 (18.45%) as a result of the changes mentioned above.

Figure 12: Changes in Wastewater Rate Revenue – Biennial Comparison

## Wastewater Revenue Comparison



## **E. *Rate Comparisons***

Exhibits V-A and V-B provide a comparison of customer bills at various levels under the current and adopted rates. The City has experienced significant rate increases over the past several years, particularly for wastewater.

As a point of reference, even with the rate increase the cost of water per gallon under the adopted rate is a little less than three quarters of a penny (0.70 cents). The cost of treatment of a gallon of wastewater is slightly less than a penny (0.94 cents). It should be noted that it was fiscal year 2012 when the cost of wastewater treatment actually exceeded the cost of water for City customers. The primary reason is the increase in debt service, both from RWSA and City operations. For the single-family household using approximately 437 CF of water per month, the combined water and wastewater bill will be \$61.67. This is an increase of \$4.93 or 8.69% based on the composite rate structure. A retail customer using 1,000 CF will have a combined water and wastewater bill that will be \$130.81, an increase of \$11.28 or 9.44%.

## **F. *Wastewater Assistance Program***

A Wastewater Assistance Program (WWAP) was created by City Council in FY2012 to assist customers who had difficulty paying their bills due to extreme circumstances. The program was begun with \$25,000 that had been set aside for the program. It is recommended that an additional \$25,000 be budgeted to further fund the WWAP. 180 customers received assistance in FY2014, totaling \$14,245. This program will continue to operate in conjunction with the WAP. The program will be administered by the Utility Billing Office in a similar fashion as the Gas Assistance Program established in 2002.

## **G. *Facility Fees***

City Council adopted a fee increase in FY2013 to new customers, the first since FY2009, to more accurately reflect the actual costs of providing capacity on wastewater treatment from the addition of wastewater lines. No increase has been adopted for the City in FY2016. Based on feedback from City Council during last year's rate-setting process, staff is proposing that the fee for a meter larger than 5/8", whether for water or wastewater, be 25% of the standard facility fee charged by the City. The current charge is \$800 regardless of meter size. Please see the table below.

**Figure 13: Adopted Wastewater Facility Fees**

ADOPTED FY2016 WASTEWATER FACILITY FEES							
Meter Size		ERC		Current City Wastewater Facility Fee		Adopted Wastewater Facility Fee	Adopted Fee is higher by
5/8"		1		\$5,350		\$5,350	\$0
1"		2.5		\$13,375		\$13,375	\$0
1.5"		5		\$26,750		\$26,750	\$0
2"		8		\$42,800		\$42,800	\$0
3"		15		\$80,250		\$80,250	\$0
4"		25		\$133,750		\$133,750	\$0
6"		50		\$267,500		\$267,500	\$0

LOW-INCOME HOUSING FACILITY FEES FOR FY2016							
Meter Size		ERC		Original Low-Income Housing Fee		Adopted Low-Income Housing Fee	Adopted Fee is higher by
5/8"		1		\$800		\$800	\$0
1"		2.5		\$800		\$3,344	\$2,544
1.5"		5		\$800		\$6,688	\$5,888
2"		8		\$800		\$10,700	\$9,900
3"		15		\$800		\$20,063	\$19,263
4"		25		\$800		\$33,438	\$32,638
6"		50		\$800		\$66,875	\$66,075

## H. Wastewater Utility Capital Projects

The current capital projects in each entity's five-year capital plan are listed below. The City updates its capital plan annually with the 5 year capital plan being FY2016–FY2020. RWSA adopted its Capital Improvement Plan January 27, 2015 (fiscal years 2015-2019).

**Figure 14: RWSA 5 Year Capital Improvement Plan for Wastewater**

<u>City Capital Projects – Wastewater System</u>	<u>Projected Five Year Capital Cost</u>
Rehabilitation/Replacement Program .....	\$ 11,924,000
<b>Total City Capital Wastewater</b>	<b>\$ 11,924,000</b>

**RWSA Urban Wastewater Projects****Projected Five Year Capital Cost**

Meadowcreek Interceptor Closeout.....	\$ 4,200,000
Schenks' Branch Interceptor.....	\$ 9,014,760
Rivanna Pump Station and Tunnel.....	\$ 33,300,000
Interceptor Sewer and Manhole Repair.....	\$ 1,337,389
Sanitary Sewer Model Update .....	\$ 330,000
Administration Building Repairs.....	\$ 450,000
Bridge Repairs.....	\$ 275,000
Moore's Creek WWTP Odor Control – Phase 2.....	\$ 9,330,000
Digester Heating and Mixing Upgrade.....	<u>\$ 6,123,000</u>

<b>Total RWSA Urban Wastewater (omits Crozet Projects)</b>	<b>\$ 64,360,149</b>
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# ***I. Exhibits***

## **EXHIBIT V-A WASTEWATER UTILITY TWO YEAR BUDGET COMPARISON**

<u>Revenue Required</u>	<u>FY2015 BUDGET</u>	<u>FY2016 BUDGET</u>	<u>PERCENT CHANGE</u>
Cost of treatment	\$ 6,937,157	\$ 7,203,293	3.84 %
Operations & maintenance	1,902,877	1,942,210	2.07
Payment in lieu of taxes	653,735	698,358	6.83
Indirect costs	135,931	111,595	-17.90
Utility billing office budget	273,605	276,650	1.11
Meter reading budget	60,964	60,645	-0.52
Wastewater assistance program	25,000	25,000	0.00
Bad debts	20,000	20,000	0.00
Vehicle replacement	73,606	73,606	0.00
Computer system support	26,420	27,080	2.50
Debt service funding	<u>\$ 2,400,000</u>	<u>\$ 2,985,000</u>	24.38
Total operations	\$ 12,509,295	\$ 13,423,436	7.31 %
Less revenues not related to sewer rates:			
Finance charges for late payments	\$ 20,000	\$ 20,000	0.00
Rate stabilization	<u>\$ 850,000</u>	<u>\$ 300,000</u>	
Total	\$ 870,000	\$ 320,000	-63.22 %
Revenue required from sewer charges	\$ 11,639,295	\$ 13,103,436	12.58 %
LESS UVa central charges	2,405,800	2,292,780	-4.70 %
Balance to be recovered by City Water Sales	\$ 9,233,495	\$ 10,810,656	17.08 %
Required Percent Increase in Overall Rates	12.33%	13.91%	
Minimum Monthly Charge	4.00	4.00	0.00 %
Minimum charges	<u>\$ 676,232</u>	<u>\$ 675,001</u>	-0.18 %
Balance to be recovered through rate above minimum	\$ 8,557,263	\$ 10,135,656	18.45 %
Volume (MCF) above minimum	139,689	143,900	3.01 %
<b>Rate per MCF</b>	<b><u>\$ 61.26</u></b>	<b><u>\$ 70.44</u></b>	14.99 %

**EXHIBIT V-B**  
**WASTEWATER RATE CALCULATION**  
**FY2016**

		<u>MCF</u>	<u>AMOUNT</u>
Revenue required:			
Cost of treatment		185,100	\$ 7,203,293
Operations & maintenance			1,942,210
Payment in lieu of taxes			698,358
Indirect costs			111,595
Utility billing office budget			276,650
Meter reading budget			60,645
Wastewater assistance program			25,000
Bad debts			20,000
Vehicle replacement			73,606
Computer system support			27,080
Debt service funding			<u>\$ 2,985,000</u>
Total revenue required			\$ 13,423,436
Less revenues not related to usage:			
Finance charges for late payments			\$ 20,000
Rate Stabilization			<u>\$ 300,000</u>
Total other revenues			\$ 320,000
Revenue required from sewer charges			\$ 13,103,436
Less fixed sewer charges :			
U Va central charges <sup>1</sup>	\$ 55.65	41,200	\$ 2,292,780
Minimum charges @	\$ 4.00	<u>0</u>	<u>674,841</u>
Total fixed sewer charges		41,200	\$ 2,967,621
Balance to recover through rate above minimum		<u>143,900</u>	<u>\$ 10,135,815</u>
Rate required per MCF above minimum			<u>\$ 70.44</u>

**Note: 1** According to the 1981 agreement, UVA is charged 100% of the wholesale rate the City pays to RWSA plus 50% of the general operation, administrative overhead, assessment and collection and capital outlay cost components of the City's retail rate.

**EXHIBIT V-C  
WASTEWATER UTILITY  
PROJECTED REVENUE REQUIREMENTS**

<b><u>Funds Required</u></b>	<b><u>FY2015</u></b>	<b><u>FY2016</u></b>
Cost of treatment	\$ 6,937,157	\$ 7,203,293
Operations & maintenance	1,902,877	1,942,210
Payment in lieu of taxes	653,735	698,358
Indirect costs	135,931	111,595
Utility billing office budget	273,605	276,650
Meter reading budget	60,964	60,645
Wastewater assistance program	25,000	25,000
Bad debts	20,000	20,000
Vehicle replacement	73,606	73,606
Computer system support	26,420	27,080
Debt service funding	<u>\$ 2,400,000</u>	<u>\$ 2,985,000</u>
Total Funds Required	\$ 12,509,295	\$ 13,423,436
<b><u>Funds Provided</u></b>		
Sewer charges	\$ 11,639,295	\$ 13,103,436
Finance charges for late payments	20,000	20,000
Rate stabilization	<u>\$ 850,000</u>	<u>\$ 300,000</u>
Total Funds Provided	<u>\$ 12,509,295</u>	<u>\$ 13,423,436</u>
Gain (Loss)	<u>\$ -</u>	<u>\$ -</u>

**EXHIBIT V-D**  
**WASTEWATER RATE COMPARISON**

<b>MONTHLY USAGE</b>	<b>\$ 4.00 /</b>	<b>\$ 4.00 /</b>		
<b>(CUBIC FEET)</b>	<b>\$ 61.26</b>	<b>\$ 70.44</b>	<b>DOLLAR</b>	<b>PERCENT</b>
	<b>FY2015</b>	<b>FY2016</b>	<b>CHANGE</b>	<b>CHANGE</b>
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	16.25	18.09	1.84	11.32
267	20.36	22.81	2.45	12.03
300	22.38	25.13	2.75	12.29
<b>437</b>	<b>30.77</b>	<b>34.78</b>	<b>4.01</b>	<b>13.03</b>
750	49.95	56.83	6.88	13.77
1,000	65.26	74.44	9.18	14.07
2,000	126.52	144.88	18.36	14.51
3,000	187.78	215.32	27.54	14.67
5,000	310.30	356.20	45.90	14.79
10,000	616.60	708.40	91.80	14.89
100,000	\$ 6,130.00	\$ 7,048.00	\$ 918.00	14.98 %

Note: Average single-family customer uses 437 CF per month.

## **SECTION VI: COMBINED WATER AND WASTEWATER CHARGES**

The following charts show the impact on customers given the newly adopted water and wastewater rates for the upcoming fiscal year. Currently, 13% of City utility customers have only water and wastewater service. The remaining 87% also have a natural gas account. Exhibit VI-A shows the impact of water usage on the combined bill using the composite water rate. Exhibit VI-B shows the seasonal impact of water usage on the customer bill given the combined rates. The final exhibit, Exhibit VI-C, shows the adopted combined facility fees.

**EXHIBIT VI-A**

**COMBINED WATER AND SEWER BILL COMPARISON  
CURRENT FY2015 AND FY2016 RATES  
USING COMPOSITE WATER RATES**

Composite Water Rates									
							Dollar	Percent	
							Increase	Increase	
							(Decrease)	(Decrease)	

Note: Average single-family customer uses 437 CF per month.

**EXHIBIT VI-B**  
**COMBINED WATER AND SEWER BILL COMPARISON**  
**CURRENT FY2015 AND FY2016 RATES**

**Using Winter Rates**

	FY2015 Rates			FY2016 Rates			Increase (Decrease)	Increase (Decrease)
	Water	Sewer	Total	Water	Sewer	Total		
<b>Rate Schedule</b>								
Customer Charge	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00		
Charge per mcf	\$ 44.64	\$ 61.26	\$ 105.90	\$ 46.39	\$ 70.44	\$ 116.83		
<b>Bill Amounts</b>								
<b>Cu Ft</b>								
0	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00	\$ -	0.00 %
200	12.93	16.25	29.18	13.28	18.09	31.37	2.19	7.51
267	15.92	20.36	36.28	16.39	22.81	39.20	2.92	8.05
300	17.39	22.38	39.77	17.92	25.13	43.05	3.28	8.25
437	23.51	30.77	54.28	24.27	34.78	59.05	4.77	8.79
750	37.48	49.95	87.43	38.79	56.83	95.62	8.19	9.37
1,000	48.64	65.26	113.90	50.39	74.44	124.83	10.93	9.60
1,500	70.96	95.89	166.85	73.58	109.66	183.24	16.39	9.82
2,000	93.28	126.52	219.80	96.78	144.88	241.66	21.86	9.95
3,000	137.92	187.78	325.70	143.17	215.32	358.49	32.79	10.07
5,000	227.20	310.30	537.50	235.94	356.20	592.14	54.64	10.17
10,000	450.40	616.60	1,067.00	467.89	708.40	1,176.29	109.29	10.24
100,000	\$ 4,468.00	\$ 6,130.00	\$ 10,598.00	\$ 4,642.88	\$ 7,048.00	\$ 11,690.88	\$ 1,092.88	10.31

**Using Summer Rates**

	FY2015 Rates			FY2016 Rates			Increase (Decrease)	Increase (Decrease)
	Water	Sewer	Total	Water	Sewer	Total		
<b>Rate Schedule</b>								
Customer Charge	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00		
Charge per mcf	\$ 58.03	\$ 61.26	\$ 119.29	\$ 60.31	\$ 70.44	\$ 130.75		
<b>Bill Amounts</b>								
<b>Cu Ft</b>								
0	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00	\$ -	0.00 %
200	15.61	16.25	31.86	16.06	18.09	34.15	2.29	7.19
267	19.49	20.36	39.85	20.10	22.81	42.91	3.06	7.68
300	21.41	22.38	43.79	22.09	25.13	47.22	3.43	7.83
437	29.36	30.77	60.13	30.36	34.78	65.14	5.01	8.33
750	47.52	49.95	97.47	49.23	56.83	106.06	8.59	8.81
1,000	62.03	65.26	127.29	64.31	74.44	138.75	11.46	9.00
1,500	91.05	95.89	186.94	94.47	109.66	204.13	17.19	9.20
2,000	120.06	126.52	246.58	124.62	144.88	269.50	22.92	9.30
3,000	178.09	187.78	365.87	184.93	215.32	400.25	34.38	9.40
5,000	294.15	310.30	604.45	305.55	356.20	661.75	57.30	9.48
10,000	584.30	616.60	1,200.90	607.10	708.40	1,315.50	114.60	9.54
100,000	\$ 5,807.00	\$ 6,130.00	\$ 11,937.00	\$ 6,035.00	\$ 7,048.00	\$ 13,083.00	\$ 1,146.00	9.60

Note: Average single-family customer uses 437 CF per month.

## EXHIBIT VI-C

### ADOPTED FY2016 FACILITY FEES

Meter Size	ERC	Current Water Facility Fee	Adopted Water Facility Fee	Adopted Fee is Higher by	Current Wastewater Facility Fee	Adopted Wastewater Facility Fee	Adopted Fee is Higher by	Combined City Facility Fee	Adopted Combined Facility Fee	Adopted Fees are Higher by
5/8"	1	\$3,100	\$3,100	\$0	\$5,350	\$5,350	\$0	\$8,450	\$8,450	\$0
1"	2.5	\$7,750	\$7,750	\$0	\$13,375	\$13,375	\$0	\$21,125	\$21,125	\$0
1.5"	5	\$15,500	\$15,500	\$0	\$26,750	\$26,750	\$0	\$42,250	\$42,250	\$0
2"	8	\$24,800	\$24,800	\$0	\$42,800	\$42,800	\$0	\$67,600	\$67,600	\$0
3"	15	\$46,500	\$46,500	\$0	\$80,250	\$80,250	\$0	\$126,750	\$126,750	\$0
4"	25	\$77,500	\$77,500	\$0	\$133,750	\$133,750	\$0	\$211,250	\$211,250	\$0
6"	50	\$155,000	\$155,000	\$0	\$267,500	\$267,500	\$0	\$422,500	\$422,500	\$0

Note: Charlottesville provides a discounted connection fee for projects certified for low income housing.

### LOW-INCOME HOUSING FACILITY FEE FOR FY2016

Meter Size	ERC	Original Water Facility Fee	Original Wastewater Facility Fee	Original Combined Fee	Adopted Water Facility Fee	Adopted Sewer Facility Fee	Combined Adopted Fee	Change in Combined Fee	Adopted Combined Fee Compared to Standard Fee	% of Standard Fee
5/8"	1	\$800	\$800	\$1,600	\$800	\$800	\$1,600	\$0	(\$6,850)	18.9%
1"	2.5	\$800	\$800	\$1,600	\$1,938	\$3,344	\$5,281	\$3,681	(\$15,844)	25.0%
1.5"	5	\$800	\$800	\$1,600	\$3,875	\$6,688	\$10,563	\$8,963	(\$31,688)	25.0%
2"	8	\$800	\$800	\$1,600	\$6,200	\$10,700	\$16,900	\$15,300	(\$50,700)	25.0%
3"	15	\$800	\$800	\$1,600	\$11,625	\$20,063	\$31,688	\$30,088	(\$95,063)	25.0%
4"	25	\$800	\$800	\$1,600	\$19,375	\$33,438	\$52,813	\$51,213	(\$158,438)	25.0%
6"	50	\$800	\$800	\$1,600	\$38,750	\$66,875	\$105,625	\$104,025	(\$316,875)	25.0%

## **SECTION VII: STORMWATER UTILITY**

### **A. Stormwater Utility Fee Rate Structure**

The Stormwater Utility fee rate was adopted in March, 2013 when City Council approved the Stormwater Utility Ordinance. The rate is projected to stay flat for the period FY2014-FY2018 per the multi-year operations budget and 5 year capital plan approved by City Council during Stormwater Utility Ordinance adoption. Infrastructure costs are paid for with bond sales over the five year period.

### **B. Fiscal Year 2016 Budget**

The total Stormwater Utility expenditures of approximately \$1.889 million have increased by approximately 3% in the amount of \$57,117. Significant portions of the budget are described below:

- An increase in Stormwater Utility fee revenues of approximately 9.5% due to continued refinement of the impervious area data that is the foundation of the Stormwater Utility billing, minor additions of new impervious area, and a slightly higher than planned collection rate.
- A planned 38% decrease of bond sales for FY2016.

The revenue increase will be used to fund maintenance for existing stormwater management facilities, purchase of equipment, and design of drainage and stormwater quality projects.

### **C. Credit Program and Charlottesville Conservation Assistance Program**

The Credit Program and Charlottesville Conservation Assistance Program (CCAP) were adopted by City Council in FY2014. The Credit Program is required by state law as a component of a municipal stormwater utility. Property owners who install and maintain structural stormwater management facilities that permanently reduce stormwater runoff and/or pollutants can apply for and receive a credit towards their stormwater utility fee ranging from 20% to 100% minus one billing unit for the impervious area treated by the facility. The Credit Program is budgeted at \$50,000 a year.

CCAP is provided in partnership with the Thomas Jefferson Soil and Water Conservation District and provides a one-time cost share for property owners who install an eligible water resources

stewardship project. For a description of the program and a list of potential projects please go to <http://tjswcd.org/vcap.php>. CCAP is budgeted at \$32,000 a year.

#### **D. *Financial Relief Program***

City Council adopted a financial relief program in February 2014 to assist homeowners who experience hardship in paying the Stormwater Utility Fee applied to their property. The program is budgeted at \$25,000 a year and paid for with general funds, not Stormwater Utility funds. The program provides a 60% to 100% reduction in the Stormwater Utility Fee for residents eligible for the Real Estate Tax Relief program, with the Stormwater Utility Fee reduction matching the percentage received in real estate tax relief. The program also provides a 25% stormwater utility fee reduction for residents who are approved for the Charlottesville Housing Affordability Tax Grant Program (CHAP).

#### **E. *Stormwater Utility Capital Projects***

The current capital projects in each entity's five-year capital plan are listed below. The Stormwater Utility capital plan was adopted by Council when the Stormwater Utility Ordinance was approved in March of 2013. The 5 year capital plan for the Stormwater Utility is for the period FY2014–FY2018.

**Figure 15: 5 Year Capital Improvement Plan for Stormwater**

<b><u>City Capital Projects – Wastewater System</u></b>	<b><u>Projected Five Year Capital Cost</u></b>
Design/Permitting for Drainage/ Stormwater Improvement Projects .....	\$ 700,000
Water Resources Master Plan .....	\$ 450,000
Major Capital Drainage Improvement Project Construction .....	\$ 1,200,000
Stormwater Quality Retrofit Project Construction .....	\$ 800,000
Neighborhood Drainage Improvements .....	\$ 250,000
Rehabilitation Program .....	\$ 4,500,000
<b>Total City Capital Stormwater</b>	<b>\$ 7,900,000</b>

## SECTION VIII: GAS UTILITY

### **A. Background**

The City of Charlottesville's gas utility operates on a self-supporting basis, and is designed to not operate at a profit. However, due to various factors (winter weather and the number of gas customers) it can generate a profit or loss in any given year. Over time, however, the rates are designed to be at a break-even point.



Natural gas is domestically abundant with 98.5% of the natural gas we use in the United States comes from North America as well as being a clean and green source. It has fewer impurities, is less chemically complex and its combustion results in fewer greenhouse gases than coal or oil since when it is burned completely the principal products of combustion are carbon dioxide and water vapor, thus reducing our carbon footprint. In fact, measured at the source, natural gas appliances can lower a home's

carbon footprint by 43% over electric appliances. Natural gas also has less waste, for example, of every 100 units of energy used to generate electricity, only about 30 of those units actually get delivered to your home. In comparison, natural gas is preferred by many people, but the market area is restricted to those geographic areas that are served by distribution lines. To get maximum sales from new developments, it is important to have mains in place before construction begins. If a customer has installed equipment that uses another fuel, conversion to natural gas takes place over an extended time period and diminishes the economic feasibility of line extensions. Therefore, it is essential to work with potential gas customers as they are making their initial decisions, via an active marketing effort, if the City wishes to continue to add new customers.

The Charlottesville gas system currently provides service to an area that includes all of Charlottesville and parts of Albemarle County consisting of 319 miles of main. As of March, 2015, there are approximately 19,454 customers (12,302 in the City and 7,152 in the County).

This includes 178 new customers over last year, as well as another 23 finished service connections that will become customers once the home or business is reoccupied. This is an increase of 201 connections over last year, and an example of the expansion programs which have provided a substantial capacity for growth, allowing the gas system to compete for business in a growing service area.

Four levels of service are provided to meet the needs of various customer classes: firm, interruptible, air conditioning and transportation. Most consumers are firm customers, with a priority for gas use at all times. Currently, there are 12 large-volume customers with interruptible service who are not assured of continuous service; they must maintain an alternate fuel system and be prepared to switch to that alternate fuel within several hours of notification. This customer class is vital to the system because it allows the City to stay within the volume requirements of the firm transportation entitlement and still meet the gas needs of firm customers in peak demand periods. Interruptible customers pay lower rates than firm customers because they have no assurance of service in peak demand periods and, therefore, do not share in the cost of providing peak period supply. The air conditioning class includes a few customers who use gas air conditioning systems and pay lower rates because this is an off-peak load. Transportation customers are those who purchase their own gas from independent suppliers and transport it through the City's distribution system to their location. All transportation service is on an interruptible basis. There is currently one transportation customer. For fiscal year 2014 the City's gas consumption (by volume) was approximately:

- 72% firm customers
- 28% interruptible
- <1% air conditioning
- 100%

## ***B. Marketing Efforts and New Business***

Yearly home sales for 2014 in Greater Charlottesville were up 2% compared to 2013 sales. This marked the third consecutive year with gains in sales. Also, the median sales price for 2014 was the highest amount since 2007, according to a year-end real estate report from the Charlottesville Area Association of Realtors (CAAR).

The recent financial turmoil changed the new construction market in Charlottesville. Before the recession there were dozens of local homebuilders; now there are a handful of select builders. Fortunately, the remaining premium builders are building in large quantities and using natural gas as a standard in the majority of their units. In 2014, four builders accounted for over 67% of

residential gas applications. The top four builders are Southern Development, Ryan Homes, Stanley Martin, and Craig Builders.

The home improvement market is another niche where we have been concentrating our sales efforts. The large difference of energy cost between natural gas and oil/propane helps homeowners to offset the initial cost of conversion. This market accounted for more than 16% of applications for residential gas service in 2014.

### **Figure 16: New Services Completed and Planned**

Projects: 1=County ; 2=City

#### *Residential*

- Avemore Phase IV – 46 townhomes (1)
- Avinity – 124 mixed residential units (1)
- Briarwood – 665 residences (1)
- Burnett Commons Phase II – 45 lots (2)
- Dunlora Forest – 99 units (1)
- Estes Park - 68-unit (1)
- Flats at West Village – Student Housing (2)
- Hyland Ridge – 84 luxury single homes (1)
- Lochlyn Hill – 1st phase (1)
- Locust Grove Apartments (2)
- Kenridge – 60 villas/townhouses (1)
- Pavilions – 340 town homes (1)
- Plaza on West Main - Apartments and Retail (2)
- Riverside Village -69 residential units (1)
- Out of Bounds – 56 Single family homes and Townhomes (1)
- West Monacan Dr. – Main Extension (1)
- Willow Glen – Single homes and townhomes (1)

#### *Commercial*

- Marriot Residence Inn at West Main (2)
- Mountaintop Montessori School Addition (1)
- Northside Library (1)
- New Hope Community Church (1)
- Pantops Plaza – Restaurants and retails (1)

- Phoenix Salon Suites (2)
- Rivanna Station RDF (2)
- Union Ridge Baptist Church (1)
- Westminster Canterbury addition (1)
- World of Beer (2)

**Potential new projects include:**

*Residential*

- 1000 West Main St. - mixed-use residential (2)
- Belvedere 2<sup>nd</sup> phase – 120 lots (1)
- Berkeley Main Extension (1)
- Carlton Avenue Apartments (2)
- Cascadia - 50 units (1)
- Lochlyn Hill – 2<sup>nd</sup> phase (2)
- Northtown – Retail and offices (1)
- North Pointe – 900 residences and 700,000 sq. commercial space (1)
- Water Street Promenade – Old Coal Tower Apartments (2)

*Commercial*

- Albemarle Rehabilitation Center – Senior care (1)
- Belvedere Station – Retail and Restaurant (1)
- Bojangles – Restaurant (1)
- Chick-fil-A Pantops – Restaurant (1)
- Costco at Stonefield (1)
- Fifth Street Station - Retail (1)
- Kroger Marketplace at Seminole Square (2)
- McIntire Square (2)
- University of Virginia Physicians Group (1)
- UVa Recycling Center (1)
- The Standard (2) mixed used
- YMCA McIntire Park (2)

Yearly home sales for 2014 in Greater Charlottesville were up 2% compared to 2013 sales. This marked the third consecutive year with gains in sales. Also, the median sales price for 2014 was the highest amount since 2007, according to a year-end real estate report from the Charlottesville Area Association of Realtors (CAAR).

## Communication Efforts

### ***Gas Safety Public Awareness Program***

In 2007, in order to comply with the RP 1162 regulation, we launched a comprehensive gas safety program featuring our mascot, Flicker the Flame. After the San Bruno, CA natural gas tragedy in 2010, we decided to intensify our preventive gas safety communication efforts. In June 2014 we received the results of a follow-up survey, and the outcome was very positive. The gas safety survey showed that 80% of residents within the service area would recognize the smell of rotten eggs as natural gas, versus 39% as reported in 2007. Our actions in 2014 included:

- **Call Before you Dig** – Although, most commercial excavators are aware of “call VA811 before digging” law, the number of third party excavation damage to our gas line are on the rise. Part of the problem, lies in excavators not following the dig with care guidelines. “No Reasonable Care” gas line damage jumped from 28% in 2012 to 50% in 2013. To tackle the situation, we created targeted educational programs to excavators as follows:
  - **“Marty’s Minute”** – A series of radios spots with the contractor Marty. Our well-intended fictitious character shares his wisdom of years of experience in construction and the importance of digging with care. These spot have been aired during the early morning drive hours on the local Country Radio station.
  - **“VA 811 Day Celebration”** – On August 11th, Charlottesville Gas hosted its first annual VA811 Day event, celebrating safe excavation practices. We featured a live radio DJ broadcast, distributed giveaways, food, educational materials, and received local media press coverage. Within three hours, we interacted with over 50 individuals to discuss the importance of the 811 service and to personally thank each attendee for his or her willingness to learn more about safety.
  - **“Distribution of VA 811 Kits”** - We started a new outreach program to local excavators and construction workers. Staff visited construction sites and handed out VA 811 Kits that are comprised of a VA 811 T-Shirt, a VA 811 bumper sticker, and a safe excavation guide
  - **“Excavation Safety Luncheon”** – We hosted a special training for local excavators, plumbers and building inspectors. The 1-hour presentation was led by Frank Hudik of the State Corporation Commission (SCC).
- **TV spot** - Two Sing-A-Long safety commercials featuring our Flicker the Flame jingle were produced and began airing in 2012. The first spot focuses on the smell of gas and what to do if you suspect a leak, and the second spot highlights calling Miss Utility

before digging. Both commercials featured City employees and local children, and were produced by Charlottesville Newsplex. These spots have aired on local network channels (NBC, CBS, CW, FOX, ABC), cable TV channels (BET, Bravo, E!, Food Network, ABC Family, Hallmark Channel, Nickelodeon, Cartoon Network, DIY Channel, ESPN, ESPN2, Golf Channel, HGTV, NBC Sports) and before film screenings at Stonefield Regal Movie Theater.

- Improved gas safety flyer - This bilingual bill stuffer featured a more user friendly layout and a natural gas scent scratch-n-sniff square. To measure the effectiveness of this action, we launched a contest. Our customers could test their gas safety knowledge by participating in a short quiz on our webpage for a chance to win a prize.
- Intensified outreach programs - We targeted events with high attendance such as UVa baseball games, Holiday Heritage Parade and the WVPT Kids Book Festival. Flicker even had the honor of throwing out the first pitch at a UVa Baseball ACC series game.
- Expansion of the Flicker @ your classroom program - During the 2014 school year, the Flicker @ your Classroom and Summer Camp programs reached over 300 children. We received worksheets, letters and thank you notes from the program participants that document the children are learning the key points of gas safety.

## Gas Safety Public Awareness Program



TV Spot

**FLICKER THE FLAME JINGLE**

**A SAFE ENERGY SOURCE FOR WHATEVER YOU DO**

**LET FLICKER SHOW ALL THE STEPS TO YOU**

**SAFETY IS HIS CLAIM TO FAME**

**FLICKER THE FLAME!**

**NATURAL GAS IS THE BETTER WAY**

**TO TAKE CARE OF YOUR HOME EVERY DAY**

**PLAY IT SAFE AND REMEMBER THE NAME**

**FLICKER THE FLAME!**

**FLICKER THE FLAME!**

**BED FOR ANNOUNCER**

**PLAY IT SAFE AND REMEMBER THE NAME**

**FLICKER THE FLAME!**

**FLICKER THE FLAME!**



**Let Charlottesville Gas send you on a night out on the town!**

Visit [www.charlottesville.org/gas](http://www.charlottesville.org/gas), take a short gas safety quiz, and be entered to win a \$200 Downtown mall Gift Certificate. Spend an evening at your favorite restaurant and catch a show, or buy a new outfit! Flicker wants to reward you for knowing important gas safety tips!

**Charlottesville Gas quiere llevarle a una noche en la ciudad!**

Visite [www.charlottesville.org/gas](http://www.charlottesville.org/gas), y haga una prueba de seguridad de gas, y entre en el sorteo para ganar un gift certificate de \$200 para el Downtown Mall. Pase una noche en su restaurante preferido y disfrute de un espectáculo o compre un traje nuevo! Flicker quiere recompensar lo por conocer importantes consejos de seguridad de gas!

**Become our Fan on Facebook**

[www.facebook.com/FLICKERTHEFLAME](http://www.facebook.com/FLICKERTHEFLAME)

Receive updates, tips, ideas, and be the first to hear about special promotions by being a fan of Flicker on Facebook! Check it out at [www.facebook.com/flickertheflame](http://www.facebook.com/flickertheflame).

**CITY OF CHARLOTTESVILLE**  
Public Works Department  
Public Utilities Division  
434-670-3800  
[www.charlottesville.org/gas](http://www.charlottesville.org/gas)

**NATURAL GAS PIPELINE SAFETY AND YOU**  
**TU SEGURIDAD CON LA CAÑERÍA DE GAS NATURAL**

Do you know what natural gas smells like?  
Scratch Flicker's belly to find out!

The shopping spree is back! Find out how to win a \$200 gift certificate on the back of this flyer.



Flyer with natural gas scent

**All promotional material created in-house (no production cost)**

### Outreach Programs



UVA Athletic Events



Holiday Parade



WVPT Kids Book Festival



### Flicker @ your classroom



## ***Gas Marketing Program***

Since September of 2011, we've promoting our campaign "CHARLOTTESVILLE GAS: TURN YOUR HOUSE INTO A HOME". In this communication campaign, we emphasized the selling points of natural gas appliances. For the warmer weather, we highlighted the unique benefits of cooking with natural gas. During winter, our campaign focused on the comfortable warmth provided by gas furnaces and gas fireplaces.

We have improved our online presence this year. In 2013, the Charlottesville Gas website traffic increased 30% in comparison with the previous year. The increase is due to updated content and easier navigation on the Charlottesville Gas website, combined with a Web Banner campaign on NBC29, Newsplex, The Daily Progress, Cville Weekly and Yahoo! Webpages.

In November 2010, we launched the Flicker the Flame Facebook page. By March 2014, the page had 484 friends. With this initiative, we hope to create an open channel with our customers as well as with our Flicker fans.

In addition to working closely with developers and builders, some of the City's marketing activities included:

- Conducting gas main extension surveys to existing neighborhoods located nearby our service area;
- Developing and mailing various brochures targeting specific businesses; and
- Developing and mailing postcards for potential customers with gas mains in front of their homes.

## ***C. Review of Fiscal Year 2014 Performance***

When base rates are determined each year, there are always two variables that cannot be predicted with any confidence. The first is the severity of the winter weather and the resulting heating demand, and the second is the wholesale cost of gas. This winter was colder than last year resulting in a higher gas usage.

Base rates for the year include both a gas cost component based on actual wholesale prices in effect as of March, 2015 and budgeted operating costs for the year. The operating cost component remains fixed for the year, but the gas cost component is adjusted monthly through the Purchased Gas Adjustment (PGA) to reflect the actual cost of gas for the month. Rates for the current year were designed to recover the FY2016 budget on a break-even basis.

Natural gas commodity prices continue to be extremely volatile. Prices on the New York Mercantile Exchange (NYMEX) have ranged from \$2.866/dth to \$4.855/dth in the last twelve months. Over the past months, the NYMEX monthly gas commodity prices have averaged \$0.1279/dth less than the prior twelve months. However, current prices for March 2015 are lower (\$2.894/dth) than they were in March 2014 (\$4.855/dth).

Other energy related fuels such as oil, gasoline, propane, coal and electricity have varied widely in price as well. Crude Oil prices have ranged from \$49.25 - \$105.18 per oil barrel (BBL) in the past twelve months and are currently at \$49.59/BBL. Coal prices have increased this year ranging from \$53.06/ton – 78.95/ton. Electricity prices have been somewhat less volatile. Electricity for home heating, although typically more expensive than natural gas, is becoming less competitive due to lower gas prices.

Sales to the firm customers are projected to be higher than the FY2015 forecast. The firm customers continued to use less per customer on a weather-adjusted annual basis. This is part of a nationwide trend being driven by improved appliance efficiency, home energy efficiency improvements and conscious conservation efforts as a reaction to high gas commodity prices. However, we have increased our customer base creating an overall increase in sales. Sales to the Interruptible customers have remained steady, if the University of Virginia's Power Plant is removed from the equation. This is usually linked to the market demand for their products, conservation and efficiency efforts and/or alternate fuel competition.

Sales to the UVa Power Plant were greater than forecasted. The University of Virginia increased their gas consumption over the winter months due to using more gas than coal and the unusually cold and snowy winter.

#### ***D. Fiscal Year 2016 Budget, Estimated Gas Sales and Adopted Rates***

##### **Budget**

The operating budget for fiscal year 2016 was used in these rate calculations.

## **Estimated Gas Sales**

For fiscal year 2016, we are projecting total gas flows to the City of 3,195,046 dth. This higher gas purchase volume and anticipated sales was offset by a slight increase in the operating budget and a decrease in costs due to having one pipeline, resulting in decreasing rates.

Gas flows this year were forecast using gas consumption factors that have been correlated to the local climatological data. This is an inexact process, and forecast flows will continue to vary for similar weather conditions.

Interruptible rates are forecast to remain fairly flat based on historical consumption and input from the large customers, while our transportation customer is forecasted to be less than last year. The University of Virginia estimated usage in FY2016 of 900,000 dth and is higher than last year. The FY2016 budget includes the assumption that sales to interruptible and transport customers will increase.

Total flow estimates include an allowance of 2% for unaccounted for gas. Actual gas system losses for the past year were less than 2%. It is common, however, to design rates assuming a 1-2% loss. In FY2016 as in previous years, the conservative assumption of 2% loss has been used.

## **Adopted Rates**

Adopted rates for fiscal year 2016 are based on wholesale gas rates as of March 1, 2015, the City's operating budget and projected sales volume for the year. The PGA in effect for March 2015 is included in the adopted rates, and is reduced to zero as a starting point for next year. These adopted rates will become base rates for next year, and will be adjusted up or down as needed to reflect monthly changes in actual gas cost.

Adopted firm rates for July 1, 2015 are 7.4% lower for the typical firm customer, who uses 8,000 cf, than actual rates for March, 2015. The base rate increase includes a non-gas operating cost increase of about 1.12% in budgeted expenses as well as a sales volume increase resulting in a 7.97% decrease in the base rate. The City of Charlottesville will only have one pipeline contract for FY2016, resulting in a 2.76% decrease. Finally the contract price changed resulting in an increase of 2.21%. The major changes in budgeted combined non-gas operating costs components include the following:

- The total non-gas operating budget increased by \$158,105 from FY2015 to FY2016, reflecting an increase of 1.12%,
- Sales volume for firm customers increased in FY2016 by 178,016 from FY2015 causing a 7.97% decrease,
- Having one pipeline contract for the entire year results in a 2.76% decrease,
- Increase in the contract price of 2.21%.

Adopted interruptible rates are about 15.91% lower than current actual rates for the typical interruptible customer.

### **E. *Gas Rate Comparison***

Exhibit VIII-E provides a comparison of the City's current firm gas rates with other Virginia gas companies. It is difficult to compare rates in the environment of rapidly changing wholesale gas costs. The exhibits reflect a snapshot of rates for March 2015. No information is available for potential changes to other gas system rates. Because the gas utilities have different ways of passing through increases in wholesale gas cost, the relative competitiveness of these systems is constantly changing. Firm industrial rates are more difficult to compare since many systems incorporate a monthly demand charge into the rate. Interruptible rates are also very difficult to compare from system to system. Many surrounding systems do not have a published interruptible rate and others routinely discount from a published rate on a monthly basis. Rate comparisons are provided only for general information and trend determination.

### **F. *Gas Assistance Program***

The City's Gas Assistance Program (GAP) provides financial assistance to local residents who need help to pay heating bills. This fund supplements assistance that is available to many people under other programs, and may be the assistance available for some residents who need help but do not qualify under the guidelines of other programs. In the last twelve months, the City has provided 603 households with over \$20,176.97 in assistance. Contributions from area businesses and residents help to supplement the amount of money that is available for assistance. The FY2016 budget includes \$60,000 in new funding plus carryovers from prior years and should be sufficient to fund the program in FY2016.

### **G. *Programmable Thermostat Rebate Program***

The thermostat rebate program provides a rebate of up to \$100 per account to any customer who purchases and installs a programmable thermostat. The thermostats can be used to automatically

lower the temperature in a building at night or while a resident is away at work, vacation or the like, and to raise the temperature at pre-set times. By setting a thermostat back 10° to 15° at night for 8 hours, it is estimated that a customer can reduce his or her heating bills by 5% to 15%. Over the past year, 81 customers have received rebates totaling \$7,687.55. Next year's budget includes \$10,000 to continue funding this program.

## **H. *Summary of Recommendations***

Exhibit VIII-C reflects the FY2015 Base Rate, the March 2015 rate (with the PGA applied), and the Adopted FY2016 Base Rates. The rates for the Firm, Interruptible, Transportation, Air Conditioning, and Gas Lighting classifications are illustrated on the exhibit.

The gas rates in this report are summarized as follows:

1. Rate schedules presented in Exhibit VIII-C; and
2. A base unit cost for firm gas of \$4.412 per dth and a base unit cost for interruptible gas of \$3.1235 per dth.

### **Impact on Average Customer**

Rates for July 1, 2015 are 7.40% lower for the average typical firm customer, who uses 8,000 cf, than the rates for March, 2015. Firm customers include various customers (residential, commercial and industrial) for whom gas supplies are guaranteed to be available all year long without interruption. The actual percent decrease is dependent upon usage.

- For a representative residential monthly consumption of 8,000 cf, the monthly bill will decrease from \$87.47 to \$81.00, a decrease of 7.40%.
- The average single-family household, who consumes 5.092 cf of gas, will see the monthly bill decrease from \$61.64 to \$57.02, a reduction of 7.50%.

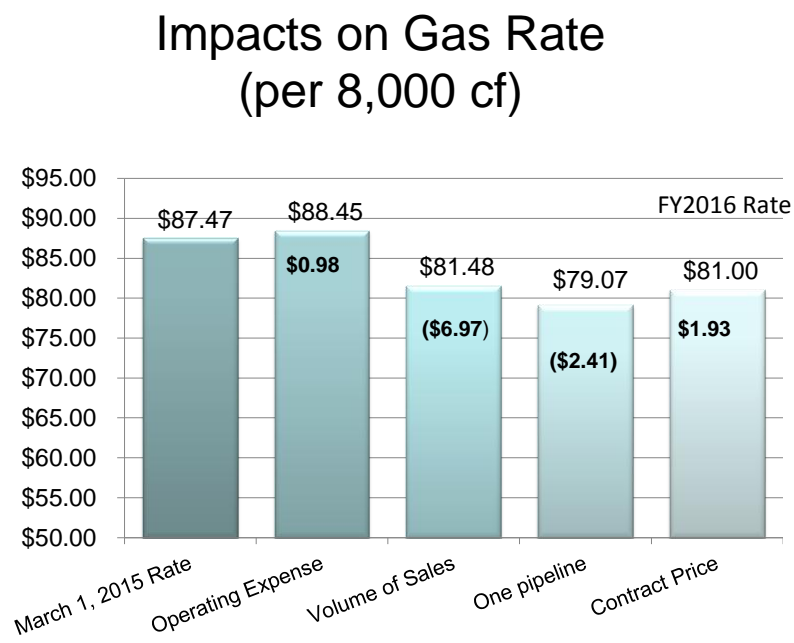
## **I. *Factors Influencing the Gas Rate***

The City of Charlottesville's gas rate is influenced by the operating budget, sales volume, contract price, and any additional revenue received by the gas utility.

Continued growth in our customer base and a volatile gas wholesale market contribute to the 7.40% decrease to firm customers. The incremental impacts are shown below:

- The total non-gas operating budget increased by \$158,105 from FY2015 to FY2016, or 1.12%, resulting in a \$0.98 increase due to increased operating expenses.
- The sales volume for firm customers increased in FY2016 by 178,016 dth causing a 7.97% decrease in the gas rate producing a \$6.97 decline.
- Pipeline contract is for one pipeline resulting in a savings of 2.76% decrease or a \$2.41 decrease.
- The total contract price increased by 2.21% resulting in a \$1.93 increase and a new rate of \$81.00.

**Figure 17: Components of Adopted Gas Rate**



**J. Exhibits**

**EXHIBIT VIII-A  
GAS UTILITY  
TWO YEAR BUDGET COMPARISON**

<b>Revenue Requirements:</b>	<b>FY2015 BUDGET</b>	<b>FY2016 BUDGET</b>
Gas Purchased	\$ 16,938,142	\$ 11,673,035
Operations & Maintenance	7,597,580	7,880,090
Payment in Lieu of Taxes	3,355,951	3,240,139
Indirect Costs	438,134	438,134
Utility billing office budget	1,094,420	1,106,599
Meter Reading	243,855	242,578
Bad Debt	70,000	35,000
New Construction Projects	387,619	403,124
Debt Service Funding	900,000	900,000
<b>Total Revenue Required for operations</b>	<b>\$ 31,025,701</b>	<b>\$ 25,918,699</b>
<b>Revenue Provided by Operations:</b>		
Gas Sales	\$ 30,700,701	\$ 25,593,699
Other Operating Revenue	325,000	325,000
<b>Total Revenue Provided by Operations</b>	<b>\$ 31,025,701</b>	<b>\$ 25,918,699</b>
<b>Gain (Loss) From Operations</b>	<b>\$ -</b>	<b>\$ -</b>

**EXHIBIT VIII-B  
GAS RATE CALCULATION  
FY2016**

Revenue Required:	dth	Amount
Gas Purchased	2,899,246	\$ 11,673,035
General Operations		2,547,350
Distribution Lines		2,227,204
Gas Supply - Other		483,348
Gas Service		841,746
Payment in Lieu of Taxes		3,240,139
Indirect Costs		438,134
Utility billing office budget		1,106,599
Meter Reading		242,578
Bad Debt		35,000
Marketing		50,000
City Yard Evaluation		100,000
Integrated Information System		1,000,000
Capital Projects - New Business		403,124
Gas Assistance Program Contribution		60,000
Thermostat Replacement Program		10,000
Debt Service Funding - Combined		900,000
Environmental Administration		345,542
Vehicle Replacement		214,900
<b>Total Revenue Required</b>		<b>\$ 25,918,699</b>
 Less Other Funding Sources:		
Air Conditioning Sales	10,000	\$ 80,591
Transportation Fees	436,000	1,286,408
Other Revenue		325,000
<b>Total</b>	<b>446,000</b>	<b>\$ 1,691,999</b>
 Revenue Required from Firm and Interruptible Customers	 2,453,246	 \$ 24,226,700
 Estimated Sales:		
Air Conditioning	10,000	
Gas loss	56,848	
Firm Sales	2,193,253	\$ 20,599,377
Interruptible Sales	639,145	3,627,323
<b>Total Estimated Sales</b>	<b>2,899,246</b>	<b>\$ 24,226,700</b>

**Exhibit VIII-C  
GAS UTILITY  
FY2016**

	<b>7/1/2014 Base Rate</b>	<b>3/1/2015 PGA</b>	<b>*Actual 3/1/2015 Rates</b>	<b>Adopted Rates FY16</b>
<b><u>FIRM</u></b>				
Customer Charge (Minimum)	\$ 10.00		\$ 10.00	\$ 10.00
First 3,000 Cu Ft, Per MCF	12.0771	\$ (1.6383)	10.4388	9.4665
Next 3,000 Cu Ft, Per MCF	11.3525	(1.6383)	9.7142	8.8985
Next 144,000 Cu Ft, Per MCF	10.1448	(1.6383)	8.5065	7.9518
Over 150,000 Cu Ft, Per MCF	9.9032	(1.6383)	8.2649	7.7625
<b><u>INTERRUPTIBLE</u></b>				
Customer Charge (Minimum)	\$ 60.00		\$ 60.00	\$ 60.00
First 600 MCF, Per MCF	9.2336	(0.9633)	8.2703	6.9358
Over 600 MCF, Per MCF	7.7370	(0.9633)	6.7737	5.7006
Annual Minimum (MCF)	1,200		1,200	1,200
<b><u>AIR CONDITIONING</u></b>				
All Gas Used, Per dth	\$ 10.3255	\$ (1.6383)	\$ 8.6872	\$ 8.0591
<b><u>GAS LIGHT</u></b>				
Charge per Month	\$ 17.00		\$ 17.00	\$ 17.00
<b><u>TRANSPORTATION</u></b>				
Small Volume Customer				
Monthly Service Charge	\$ 150.00		\$ 150.00	\$ 150.00
Rate per dth	\$ 3.4461		\$ 3.4461	\$ 3.3278
Large Volume customer - 35,000 mcf/per month				
Monthly Service Charge				\$ 600.00
Rate per dth				\$ 1.9588

\*Adopted rate schedules are based on wholesale rates for March, 2015

Note: MCF is volume adjusted by thermal factor and is equivalent to dth

**EXHIBIT VIII-D  
GAS UTILITY  
COMPARISON OF CHARGES WITH FY2015 and FY2016 RATES**

<b>FIRM CUSTOMERS</b>	<b>BASE RATES FY2015</b>	<b>ACTUAL RATES 03-01-15</b>	<b>Adopted with 03-01-15 GAS COST</b>	<b>PERCENT INCREASE (DECREASE)</b>
4,000 CU. FT.	\$ 57.58	\$ 51.03	\$ 47.30	(7.31) %
5,092 CU. FT.*	69.98	61.64	57.02	(7.50)
8,000 CU. FT.	100.58	87.47	81.00	(7.40)
15,000 CU. FT.	171.59	147.02	136.66	(7.05)
20,000 CU. FT.	222.32	189.55	176.42	(6.93)
25,000 CU. FT.	273.04	232.08	216.18	(6.85)
35,000 CU. FT.	374.49	317.15	295.70	(6.76)
60,000 CU. FT.	628.11	529.81	494.49	(6.67)
100,000 CU. FT.	1,033.90	870.07	812.56	(6.61)
150,000 CU. FT.	1,541.14	1,295.40	1,210.15	(6.58)
200,000 CU. FT.	\$ 2,036.30	\$ 1,708.64	\$ 1,598.28	(6.46) %

**INTERRUPTIBLE CUSTOMERS**

100,000 CU. FT.	\$ 983.36	\$ 887.03	\$ 753.58	(15.04) %
200,000 CU. FT.	1,906.72	1,714.06	1,447.16	(15.57)
400,000 CU. FT.	3,753.44	3,368.12	2,834.32	(15.85)
600,000 CU. FT.	5,600.16	5,022.18	4,221.48	(15.94)
1,000,000 CU. FT.	8,694.96	7,731.66	6,501.72	(15.91)
2,000,000 CU. FT.	16,431.96	14,505.36	12,202.32	(15.88)
4,000,000 CU. FT.	\$ 31,905.96	\$ 28,052.76	\$ 23,603.52	(15.86) %

\* Average Residential customer

**EXHIBIT VIII-E  
GAS RATE COMPARISON  
SUMMER AND WINTER RESIDENTIAL REQUIREMENTS  
AT MARCH 1, 2015**

<b>Distributor</b>	<b>Minimum Charge</b>	<b>4 dth of Usage</b>	<b>8 dth of Usage</b>
Charlottesville - Adopted	\$ 10.00	\$ 47.30	\$ 81.00
Charlottesville - Present	\$ 10.00	\$ 51.03	\$ 87.47
Southwestern VA Gas	\$ 11.17	\$ 33.54	\$ 57.53
Virginia Natural Gas	\$ 11.00	\$ 44.70	\$ 77.38
Danville	\$ 11.15	\$ 48.13	\$ 85.11
Richmond	\$ 11.05	\$ 54.58	\$ 97.46
Columbia Gas of Virginia	\$ 14.25	\$ 57.09	\$ 96.20

**All rates shown from other gas systems represent existing rates for March, 2015**

**EXHIBIT VIII-F**  
**Actual Rates for the Average 8 dth Customer**

	<u><b>FY2010</b></u>	<u><b>FY2011</b></u>	<u><b>FY2012</b></u>	<u><b>FY2013</b></u>	<u><b>FY2014</b></u>	<u><b>FY2015</b></u>
<b>July</b>	\$ 106.35	\$ 120.10	\$ 97.83	\$88.50	\$ 96.37	\$110.02
<b>August</b>	104.85	112.51	105.41	89.82	94.90	100.58
<b>September</b>	104.09	104.89	104.72	89.31	95.61	89.69
<b>October</b>	105.16	106.26	104.61	89.67	91.52	89.69
<b>November</b>	107.03	102.47	104.29	93.59	91.47	89.05
<b>December</b>	106.22	109.14	104.08	95.11	93.40	90.67
<b>January</b>	116.66	108.69	103.70	92.80	97.71	78.43
<b>February</b>	113.15	109.38	102.37	91.94	106.32	76.43
<b>March</b>	110.13	105.85	102.84	93.32	\$101.02	\$ 76.58
<b>April</b>	103.65	108.90	102.55	97.04	99.24	
<b>May</b>	106.61	109.83	102.34	98.79	101.50	
<b>June</b>	\$ 105.46	\$ 109.55	\$102.86	\$96.37	100.27	
Lowest rate	\$ 76.43	February, FY2015				
Highest rate	\$ 116.66	January, FY2010				

## **SECTION IX: ESTIMATED FUTURE WATER AND WASTEWATER RATES**

### **A. General**

The following analysis shows the impact of assumptions regarding operating costs and impacts of capital projects, both those of the City and of RWSA, on future water and wastewater rates. In addition, a sensitivity analysis is performed to gauge the impact of the use of rate stabilization revenue to mitigate dramatic rate increases in any given year. Revenue has been projected to offset future rate increases and minimize the fluctuation in rate changes over the period examined. These fluctuations are caused primarily by rising future capital costs. Exhibits IX-A and IX-D present estimates of the future wholesale rates from RWSA and the future City water and wastewater rates for fiscal years 2015 through 2020. Both rates will be impacted by significant increases in capital improvement costs and the effects of the capital expenditures on future rates are presented. The following assumptions were used to develop these estimates:

1. RWSA Wholesale Rates and the purchase of water and wastewater:
  - Estimates, provided by RWSA, of the projected wholesale rates are presented at the top of each exhibit.
  - RWSA's rates are split into an Operational Rate and a Debt Rate.
  - Analysis includes RWSA's Adopted Capital Improvement Plan for Fiscal Years 2015-2019, adopted January 27<sup>th</sup>, 2015.
  - For each year, the two rates are added together to get the overall wholesale rate.
  - The purchase volume of water and wastewater from RWSA is assumed to remain constant. The total treatment cost is calculated for each year and is included in the City's wastewater utility budget.
2. The City's water and wastewater Budgets:
  - Debt service is based on funding the City's adopted water and wastewater CIP's for fiscal years 2015 through 2020.
  - Operations and maintenance, payment in lieu of taxes, indirect costs, utility billing, meter reading, and water conservation line items in the City's budget are inflated at an annual rate of 2.0% for 2017 through 2020.
3. Other Revenue (service charges, etc.) – Assumed to remain constant for each year. However, the facility fee rate structure that was implemented in FY2009 and increased in FY2013 will have an impact on the amount of rate stabilization that will be used to mitigate future rate increases. Revenue received from these fees, along with additional revenue from the respective fund has been reserved to offset future rate increases, if approved. The impacts are presented at the bottom of Exhibits IX-A and IX-D and are discussed in more detail in Item 7.

4. Flows – The future flow volumes and proportions that the City sells to UVa and to the City customers are assumed to remain constant.
5. Revenue from UVa – Revenue from the sale of water and wastewater service to UVa is calculated using the contract procedure and are included.
6. Results – The resulting rates per mcf for each year are shown at the bottom of each exhibit with the percent increase from the year before. Below that is the monthly bill for the average single-family residential customer (437 CF per month) and the percent increase for each year.
7. Impact of the Rate Stabilization on the Future Rates – At the bottom of each exhibit, the effect of the facility fees on the rates are calculated using the following assumptions:

- City Staff estimates that the following revenue will be generated each year for each (water and wastewater) fund.

Year	Water Revenue	Wastewater Revenue
FY2016	\$150,000	\$300,000
FY2017	\$150,000	\$300,000
FY2018	\$150,000	\$300,000
FY2019	\$150,000	\$300,000
FY2020	\$150,000	\$300,000

- This additional revenue is shown for each year. It is assumed that \$750,000 of additional revenue will be generated for the water funds and \$1,500,000 for the wastewater fund from FY2016 through FY2020.
- The amount of each year's revenue that will be applied to reducing that year's rates is presented.
- If available, the amount of carryover from prior years to achieve relatively stable annual rate increases is presented.
- The total rate stabilization revenue to be applied to the rate calculation in each year and the new balance to be recovered is then calculated.
- Results – The resultant rates per mcf are shown at the bottom with the new rates for the average single-family residential customer.

## **B. Future Water Rates**

Exhibit IX-A presents the estimated future water rates for fiscal years 2017 through 2020. Also shown are the FY2016 rates recommended in this report and the current FY2015 rates. Without the use of rate stabilization, the rate per mcf increases from \$57.52 in 2017 to \$63.19 projected in 2020. The monthly bill of the average single-family residential customer (437 CF per month) rises from \$29.14 in 2017 to \$31.61 anticipated in 2020.

Using the revenue generated from the rate stabilization fund to reduce and stabilize the rates over the years' results in anticipated future annual rate increases per mcf at a high of 5.90% in 2017 to a low of -0.17% in FY2020. The average single-family water bill will increase between approximately 5.02% and -0.13%.

Exhibit IX-B presents projected future rates per mcf with and without the use of rate stabilization revenue. Without the use of stabilization revenue, rates range from \$57.52 in FY2017 to \$63.19 in FY2020. With the use of rate stabilization revenue, rates vary from \$55.46 in FY2017 to \$59.77 in FY2020. Exhibit IX-C shows the average monthly bill of a typical single-family household in the City. Without the rate stabilization, the monthly bill varies from \$29.14 in FY2017 to \$31.61 in FY2020. Using stabilization funds, the average monthly bill is projected to be \$28.24 in FY2017 and \$30.12 in FY2020.

### **C. *Future Wastewater Rates***

Exhibit IX-D presents the estimated future wastewater rates for fiscal years 2017 through 2020. Also shown are the FY2016 rates recommended in this report and the rates being charged in FY2015. The rate with stabilization used per mcf increases from \$73.66 in FY2017 to \$83.07 projected in FY2020. The rate per mcf without rate stabilization would be \$75.75 in FY2017 and \$85.16 in FY2020. With stabilization the single-family will spend an average of \$36.19 in FY2017 to \$40.30 in FY2020. Without the use of rate stabilization, the monthly bill of the average single-family customer (437 CF per month) rises from \$37.10 in 2017 to \$41.21 anticipated in 2020.

The usage of rate stabilization is below that used in FY2015. The amount adopted for usage in FY2016 is \$300,000. In addition, the fund is forecast for future years as well. The same amount of rate stabilization is used in each year, \$300,000. This will reduce the rate slightly over \$2 per mcf and \$0.91 per month for average single-family usage.

Exhibit IX-E and IX-F present wastewater rates per mcf and the average monthly bill of a single-family household in the City.

It should be noted that any future changes in RWSA's or the City's capital expenditure plan, operating expenditures, volume or purchases or sales and/or collection of facility fee revenue will have an impact on future rates.

## D. Exhibits

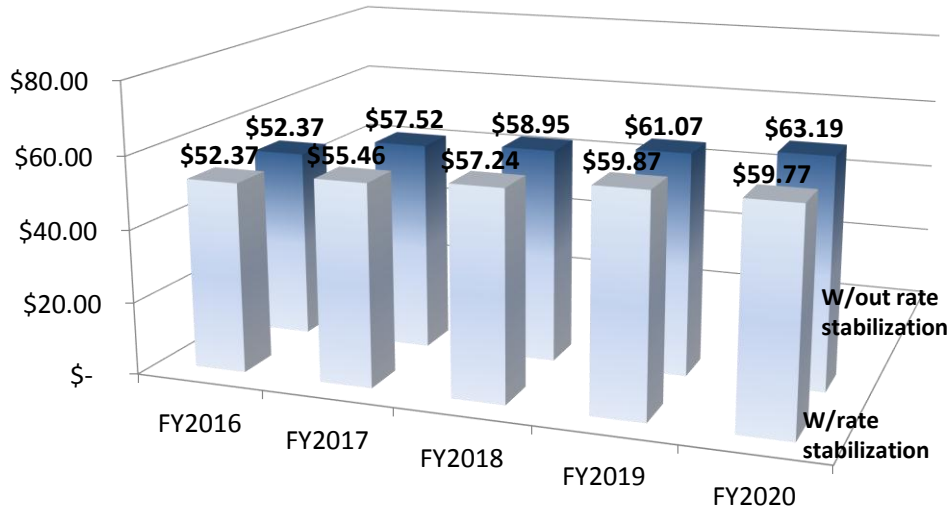
### EXHIBIT IX-A WATER FUND FUTURE WATER RATE PROJECTIONS

	Adopted FY2015	Adopted FY2016	FY2017	Projections FY2018	FY2019	FY2020
<b>Estimated Wholesale Cost of Water</b>						
RWSA - Operational Rate (Cost/MCF)	\$12.589	\$12.813	\$13.198	\$13.594	\$14.001	\$14.421
RWSA - Debt Rate (Cost/MCF)	\$7.330	\$7.802	\$8.280	\$8.123	\$8.482	\$8.826
<b>Total RWSA Rate (Cost/MCF)</b>	<b>\$19.919</b>	<b>\$20.615</b>	<b>\$21.478</b>	<b>\$21.717</b>	<b>\$22.484</b>	<b>\$23.248</b>
Percent Change in RWSA Rates	13.75%	3.49%	4.19%	1.11%	3.53%	3.40%
Amount of Water Sold (MCF)	248,810	245,559	245,559	245,559	245,559	245,559
<b>Cost of Water Purchase From RWSA</b>	<b>\$4,956,097</b>	<b>\$5,062,169</b>	<b>\$5,274,116</b>	<b>\$5,332,767</b>	<b>\$5,521,073</b>	<b>\$5,708,710</b>
Percent Change in Water Purchase Cost	17.87%	2.14%	4.19%	1.11%	3.53%	3.40%
<b>Projected City Budgets</b>						
Water purchases	\$4,956,097	\$5,062,169	\$5,274,116	\$5,332,767	\$5,521,073	\$5,708,710
Operations & maintenance (inflate 2%)	2,327,537	2,330,715	2,377,329	2,424,876	2,473,373	2,522,841
Water conservation (inflate 2%)	193,481	193,809	197,685	201,639	205,672	209,785
Toilet rebate program	40,000	40,000	40,000	40,000	40,000	40,000
Payment in lieu of taxes (inflate 2%)	511,532	573,200	584,664	596,357	608,284	620,450
Indirect costs (inflate 2%)	163,174	131,723	134,357	137,045	139,786	142,581
Utility Billing Office budget (inflate 2%)	273,605	276,650	282,183	287,826	293,583	299,454
Meter Reading budget (inflate 2%)	60,964	60,645	61,857	63,095	64,356	65,644
Water assistance program	25,000	25,000	25,000	25,000	25,000	25,000
Vehicle replacement budget	73,029	73,029	73,029	73,029	73,029	73,029
Computer System Support	23,917	21,900	21,900	21,900	21,900	23,300
Bad debts	10,000	10,000	10,000	10,000	10,000	10,000
Interest on deposits	5,000	5,000	5,000	5,000	5,000	5,000
<b>Debt service funding</b>	<b>1,725,000</b>	<b>1,725,000</b>	<b>1,750,000</b>	<b>1,850,000</b>	<b>1,950,000</b>	<b>2,050,000</b>
Total operations	\$10,388,335	\$10,528,839	\$10,837,121	\$11,068,534	\$11,431,057	\$11,795,794
Percent Increase	10.96%	1.35%	2.93%	2.14%	3.28%	3.19%
Less revenues not related to water use:						
Connection fees	125,000	125,000	125,000	125,000	125,000	125,000
Other revenue	65,000	65,000	65,000	65,000	65,000	65,000
Rate stabilization	645,000	500,000	0	0	0	0
Total	\$835,000	\$690,000	\$190,000	\$190,000	\$190,000	\$190,000
Revenue required from water charges	\$9,553,335	\$9,838,839	\$10,647,121	\$10,878,534	\$11,241,057	\$11,605,794
LESS UVa central charges	1,532,160	1,513,480	1,568,490	1,588,124	1,639,676	1,691,271
Balance to be recovered by City Water Sales	\$8,021,175	\$8,325,359	\$9,078,631	\$9,290,409	\$9,601,381	\$9,914,524
<b>Minimum Monthly Charge</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>
Minimum charges revenue	\$682,296	\$682,168	\$684,556	\$686,952	\$689,356	\$691,769
Balance to be recovered through rate	\$7,338,879	\$7,643,191	\$8,394,075	\$8,603,458	\$8,912,025	\$9,222,755
Volume (MCF)	146,000	145,943	145,943	145,943	145,943	145,943
<b>Rate per MCF</b>	<b>\$50.27</b>	<b>\$52.37</b>	<b>\$57.52</b>	<b>\$58.95</b>	<b>\$61.07</b>	<b>\$63.19</b>
Percent Change in MCF Rate	14.02%	4.18%	9.83%	2.49%	3.60%	3.47%
<b>Monthly Bill for Single-family Cust. (437 CF/month)</b>	<b>\$25.97</b>	<b>\$26.89</b>	<b>\$29.14</b>	<b>\$29.76</b>	<b>\$30.69</b>	<b>\$31.61</b>
Percent Change in Monthly Bill	11.60%	3.53%	8.37%	2.14%	3.11%	3.02%
<b>Proposed Rates with Additional Stabilization</b>						
Beginning Rate Stabilization Balance	\$475,000	\$625,000	\$275,000	\$125,000	\$25,000	\$0
Additional revenue from Stabilization Fund	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
Revenue to be applied to the current year	\$0	\$0	\$300,000	\$250,000	\$175,000	\$150,000
<b>to reduce rates</b>						
Ending Rate Stabilization Fund Balance	\$625,000	\$275,000	\$125,000	\$25,000	\$0	\$0
New balance to be recovered through the rate	\$7,338,879	\$7,643,191	\$8,094,075	\$8,353,458	\$8,737,025	\$8,722,755
<b>New Rate per MCF</b>	<b>\$50.27</b>	<b>\$52.37</b>	<b>\$55.46</b>	<b>\$57.24</b>	<b>\$59.87</b>	<b>\$59.77</b>
Percent Change in MCF Rate	14.02%	4.18%	5.90%	3.21%	4.59%	-0.17%
<b>New Monthly Bill for Single-family Cust. (437 CF/mo)</b>	<b>\$25.97</b>	<b>\$26.89</b>	<b>\$28.24</b>	<b>\$29.01</b>	<b>\$30.16</b>	<b>\$30.12</b>
Percent Change in Monthly Bill	11.59%	3.54%	5.02%	2.73%	3.96%	-0.13%

## Exhibit IX-B

### Future Water Rates

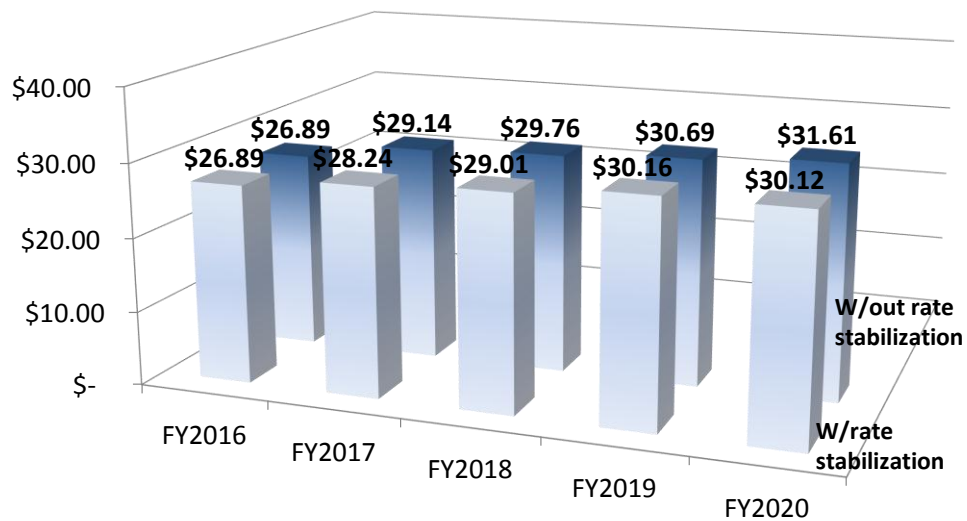
(1,000 CF)



## Exhibit IX-C

### Future Water Rates

Single-Family (437 CF)



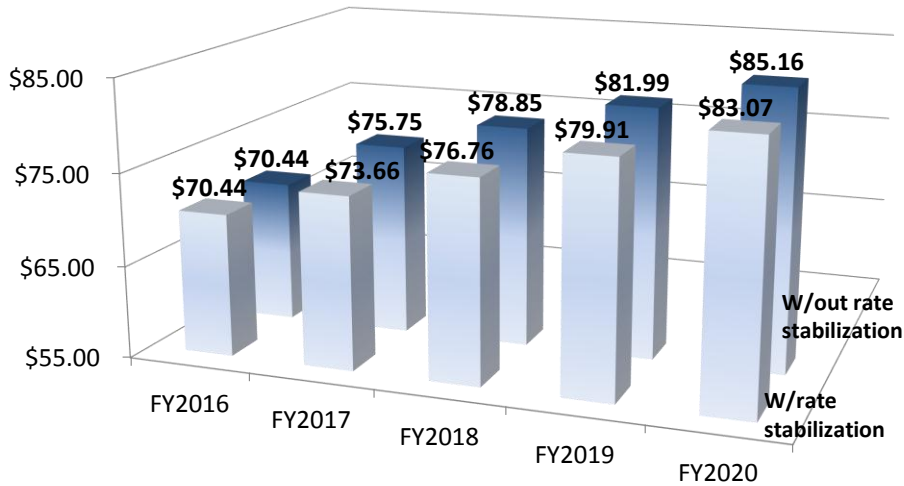
**EXHIBIT IX-D  
WASTEWATER UTILITY  
FUTURE WASTEWATER RATE PROJECTIONS**

	Adopted FY2015	Adopted FY2016	FY2017	Projected FY2018	FY2019	FY2020
<b>Estimated Wholesale Cost of Sewer</b>						
RWSA - Operational Rate (Cost/MCF)	\$ 13.225	\$ 13.382	\$ 13.783	\$ 14.197	\$ 14.623	\$ 15.062
RWSA - Debt Rate (Cost/MCF)	\$ 15.364	\$ 16.194	\$ 17.099	\$ 17.795	\$ 18.700	\$ 19.261
<b>Total RWSA Rate (Cost/MCF)</b>	<b>\$ 28.589</b>	<b>\$ 29.576</b>	<b>\$ 30.883</b>	<b>\$ 31.992</b>	<b>\$ 33.271</b>	<b>\$ 34.60</b>
Amount of Treatment Purchased (MCF)	242,655	243,553	243,553	243,553	243,553	243,553
<b>Cost of Sewer Purchase From RWSA</b>	<b>\$ 6,937,154</b>	<b>\$ 7,203,293</b>	<b>\$ 7,521,535</b>	<b>\$ 7,791,671</b>	<b>\$ 8,103,338</b>	<b>\$ 8,427,471</b>
Percent Increase	4.40%	3.84%	4.42%	3.59%	3.74%	3.88%
<b>Projected City Budgets</b>						
Cost of treatment	\$ 6,937,154	\$ 7,203,293	\$ 7,521,535	\$ 7,791,671	\$ 8,103,338	\$ 8,427,471
Operations and maintenance (Inflate by 2.0%)	1,902,877	1,942,210	1,981,054	2,020,675	2,061,089	2,102,311
Payment in lieu of taxes (Inflate by 2.0%)	653,735	698,358	712,325	726,571	741,103	772,229
Indirect costs (Inflate by 2.0%)	135,931	111,595	113,827	116,104	118,426	120,794
Utility billing office budget (Inflate by 2.0%)	273,605	276,650	282,183	287,826	293,583	299,454
Meter reading budget (Inflate by 2.0%)	60,964	60,645	61,857	63,095	64,356	65,644
Wastewater assistance program	25,000	25,000	25,000	25,000	25,000	25,000
Bad debts	20,000	20,000	20,000	20,000	20,000	20,000
Vehicle replacement	73,606	73,606	73,606	73,606	73,606	73,606
Computer system support	26,420	27,080	27,080	27,080	27,080	27,080
<b>Debt service funding</b>	<b>\$ 2,400,000</b>	<b>\$ 2,985,000</b>	<b>\$ 3,170,000</b>	<b>\$ 3,375,000</b>	<b>\$ 3,550,000</b>	<b>3,700,000</b>
Total operations	\$ 12,509,292	\$ 13,423,436	\$ 13,988,467	\$ 14,526,628	\$ 15,077,581	\$ 15,633,589
Percent Increase	6.32%	7.31%	4.21%	3.85%	3.79%	3.69%
Less revenues not related to sewer rates:						
Finance charges for late payments	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	20,000
Rate stabilization	850,000	300,000	-	-	-	0
Total	\$ 870,000	\$ 320,000	\$ 20,000	\$ 20,000	\$ 20,000	20,000
Revenue required from sewer charges	\$ 11,639,292	\$ 13,103,436	\$ 13,968,467	\$ 14,506,628	\$ 15,057,581	\$ 15,613,589
LESS UVa central charges	2,405,800	2,292,780	2,391,083	2,481,064	2,577,060	2,674,992
Balance to be recovered by City sewer sales	\$ 9,233,492	\$ 10,810,656	\$ 11,577,384	\$ 12,025,564	\$ 12,480,521	\$ 12,938,597
<b>Minimum Monthly Charge</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>
Minimum charges	\$ 676,232	\$ 674,841	\$ 677,203	\$ 679,573	\$ 681,952	684,338
Balance to be recovered thru rate	\$ 8,557,260	\$ 10,135,815	\$ 10,900,181	\$ 11,345,991	\$ 11,798,569	\$ 12,254,259
Volume (MCF) used to calculate rate	139,689	143,900	143,900	143,900	143,900	143,900
<b>Rate per MCF</b>	<b>\$ 61.26</b>	<b>\$ 70.44</b>	<b>\$ 75.75</b>	<b>\$ 78.85</b>	<b>\$ 81.99</b>	<b>\$ 85.16</b>
Percent Change in MCF Rate	13.44%	14.99%	7.54%	4.09%	3.98%	3.87%
<b>Monthly Bill for Ave S-f Cust. (437 CF/month)</b>	<b>\$ 30.77</b>	<b>\$ 34.78</b>	<b>\$ 37.10</b>	<b>\$ 38.46</b>	<b>\$ 39.83</b>	<b>\$ 41.21</b>
Percent Change in Monthly Bill	11.50%	13.04%	6.67%	3.65%	3.57%	3.48%
<b>Proposed Rates with Additional Stabilization</b>						
Beginning Rate Stabilization Balance	\$ 652,180	\$ 102,180	\$ 102,180	\$ 102,180	\$ 102,180	\$ 102,180
Additional revenue from Stabilization Fund	300,000	300,000	300,000	300,000	300,000	\$ 300,000
<b>Revenue applied to current year to reduce rates</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 300,000</b>	<b>\$ 300,000</b>	<b>\$ 300,000</b>	<b>\$ 300,000</b>
Ending Rate Stabilization Fund Balance	\$ 102,180	\$ 102,180	\$ 102,180	\$ 102,180	\$ 102,180	\$ 102,180
New balance to be recovered through the rate	\$ 8,557,260	\$ 10,135,815	\$ 10,600,181	\$ 11,045,991	\$ 11,498,569	\$ 11,954,259
<b>New Rate per MCF</b>	<b>\$ 61.26</b>	<b>\$ 70.44</b>	<b>\$ 73.66</b>	<b>\$ 76.76</b>	<b>\$ 79.91</b>	<b>\$ 83.07</b>
Percent Change in MCF Rate	13.44%	14.99%	4.57%	4.21%	4.10%	3.95%
<b>New Monthly Bill for Ave S-f Cust. (437 CF/month)</b>	<b>\$ 30.77</b>	<b>\$ 34.78</b>	<b>\$ 36.19</b>	<b>\$ 37.54</b>	<b>\$ 38.92</b>	<b>\$ 40.30</b>
Percent Change in Monthly Bill	11.50%	13.04%	4.05%	3.74%	3.67%	3.55%

## Exhibit IX-E

### Future Wastewater Rates

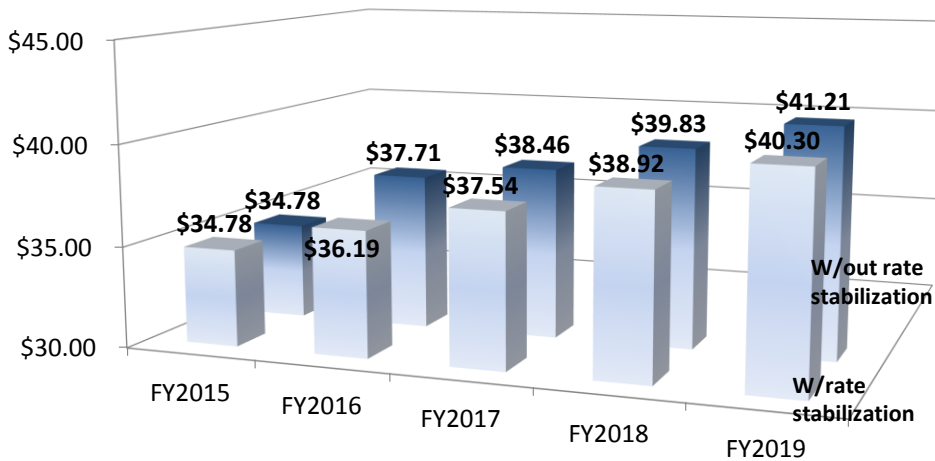
(1,000 CF)



## Exhibit IX-F

### Future Wastewater Rates

Single-Family (437 CF)



## GLOSSARY OF TERMS

**Base Rate** – The gas rate as set each year as of July 1, consisting of budgeted operating costs and current wholesale gas prices; it is adjusted each month to reflect changes in the cost of wholesale gas through the PGA.

**Basin** – A geographical area of the City wastewater collection system.

**CCTV** – Closed circuit televising – Technology in which a camera, driven via remote control through the sanitary sewer, allows the operator to view blockages/breakages, etc., in the line and to schedule necessary maintenance accordingly.

**Cubic feet** – 7.48 gallons of water – The standard measure of water usage chosen by the City of Charlottesville.

**Debt Service** – The amount required to pay the annual principal and interest payments on long term debt, such as bonds.

**Degree Day** – The measure of relative heating requirements determined by subtracting the average temperature for the day from 65 degrees. The higher the number of degree days, the lower the temperature and, therefore, the higher the heating need.

**dth** – Decatherm; a measurement of gas that is 1,000,000 BTU (British thermal units) of heat. A metered volume of gas (mcf) is converted by the thermal factor, which varies with the temperature, to a constant heat value (dth) for billing purposes. Both purchases and sales are measured and priced by dth.

**Indirect Cost** - Local governments have overhead and administrative costs essential to operating the government and providing services to the public. Examples include costs incurred for a city manager, human resources, financial management, and information technology. Although these services typically reside in the General Fund, they also support departments in other funds, such as utilities. The indirect cost associated with these services and then charged to other funds is calculated, typically annually, based on a standard methodology of cost allocation.

**mcf** – 1,000 cf; a volumetric measurement of water flows. One mcf of water is approximately 7,480 gallons.

**NYMEX** – New York Mercantile Exchange - The City purchases gas from its supplier based on closing monthly prices from this exchange.

**Payment in lieu of taxes (PILOT)** – An annual payment to the City's General Fund. The formula for water and wastewater used each year to calculate the amount of transfer is based on the prior year budgeted revenues from sales. The formula for gas is prior year expenses less cost of sales.

**PGA** – Purchased Gas Adjustment; the change in the annual base rate. It is calculated monthly to reflect the change in wholesale gas costs.

**Rate of Return** – The discount or interest rate that is used to calculate the maximum investment that the City will make to assess a potential gas line extension project, based on an expected flow of income.

**Rate Stabilization** – Money that has been set aside in prior years for the specific purposes of being used to offset all or a portion of a potential utility rate increase.

**Water Loss Factor** – The difference between the amount of water purchased by the City from Rivanna Water and Sewer Authority for distribution and the amount that is billed to City customers. The loss may result from leaks, inaccurate meters, firefighting and other unmetered uses.

**Working Capital** – Current assets (cash and other liquid assets) less liabilities due within one year or net liquid assets available for use in current operations.

**Working Capital Requirement** – A formula used to calculate the amount needed to pay operating expenses for 60 days for water, wastewater, and for gas. This formula is used to ensure that there are adequate cash balances maintained to pay all obligations on time, without borrowing from the City's General Fund.